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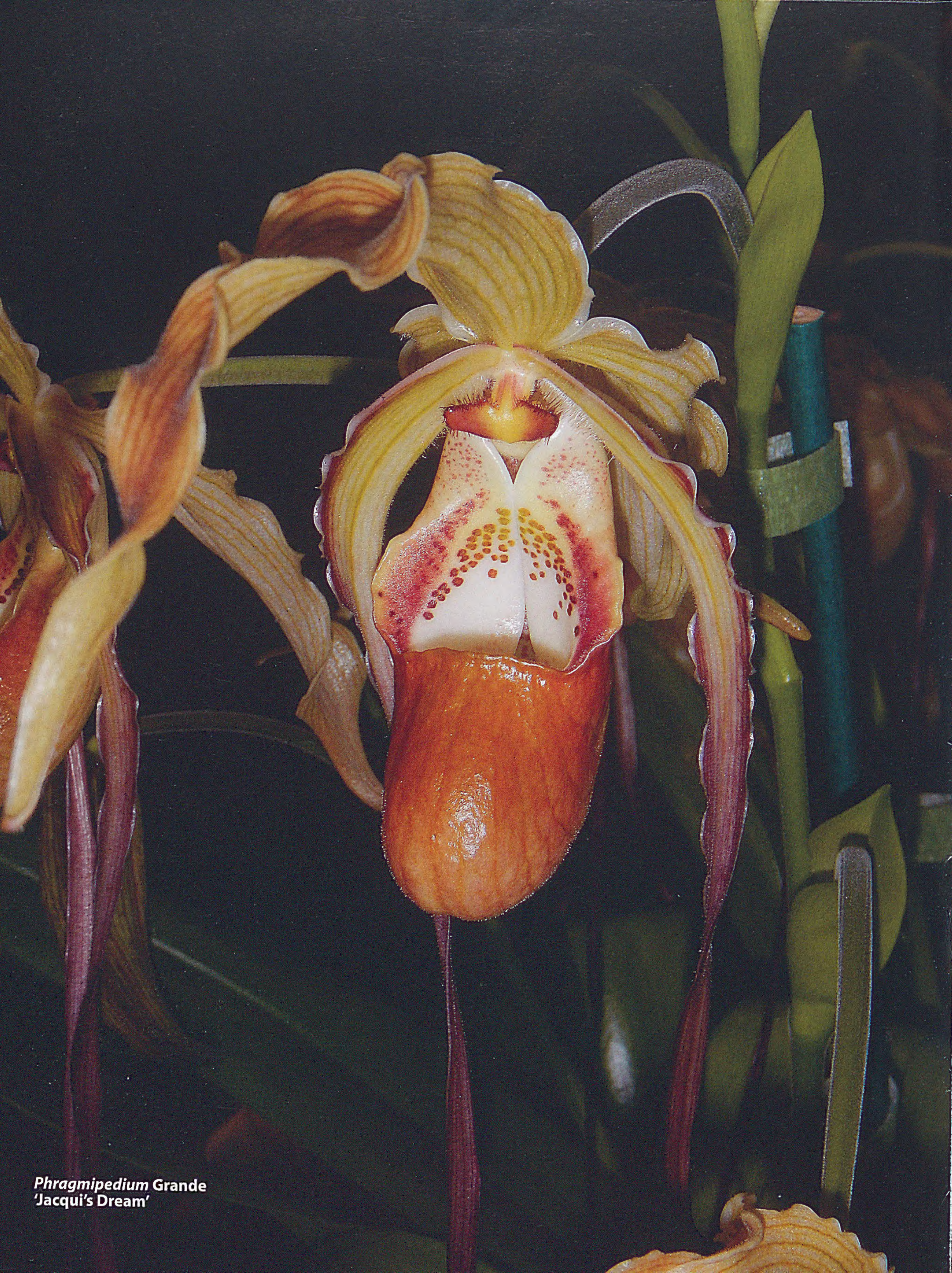

***Phragmipedium* Grande**
'Jacqui's Dream'

Goodbye from the Editor's Desk...

All good things must come to an end. Sadly, this is the last issue of the ***Australian Orchid Review***.

Volume 1, Number 1, of the *AOR* was published in January 1936, and subsequently ran for 84 years. I became Editor of the *AOR* towards the end of 1999, and have edited, compiled and produced 20 volumes, some 120 issues. Countless new Australian orchid species have been formally described in these pages, which has assisted with their conservation and management. I became a co-owner of the *AOR* in 2010 with Caitlin Hoolahan and established *Hills Orchid Publishing*.

We have been aware for some time, that the popularity of printed specialist magazines are on the decline. We have maintained the highest standard of accurate editorial content, colour photography, with archival paper and the highest quality gloss printing process. It wasn't cheap, but we produced a sparkling product. The number of orchid nurseries in Australia is sadly sharply in decline. In fact, many "nurseries" are really backyard growers who simply sell their excess stock. Paid advertising helps keep subscription rates down. Sadly, our advertising has dropped as many businesses have downsized or stopped trading. We also know the orchid fraternity in Australia is getting older, and there are not as many younger people taking their places. Younger people generally do not subscribe to magazines. They are happy to get instant information on the Internet, or get plenty of "likes" on social media pages.

Most want things instantly. They want that flowering orchid on display, not a seedling or division that may take a year or two to bloom. You can buy an award quality *Phalaenopsis* in bloom, in a range of colours, at most big box stores, and the quality is such they could probably win Grand Champion at your local orchid show, all for less than $30. Do we want disposable orchids or the joy of nurturing, cultivating and blooming them?

We can all Google a plants scientific name, but how many of the images are of the requested plant? How much of that on-line information is correct? How do you know which photo matches what correct name? I'm saddened by the fact that many orchid growers appear to have lost their attention to detail and no longer appear to be concerned with getting correct information or accurate names for their orchids or simply learning more about this wonderful and specialised group of plants. Many don't want to wait two months for their orchid magazine to appear in the post.

We have made this decision, as quite frankly, I no longer believe there is enough support or interest in our product. Sadly, I don't think the *AOR* will be missed. There certainly has been very little support in recent times from orchid societies and their prominent members. Many have happily taken complimentary copies of the *AOR* off my hands at various orchid society meetings, shows, fairs and conferences, promised to subscribe, but never have. I do see the subscribers list! Anyhow, best to finish on our own terms.

I wish to thank our loyal subscribers and advertisers, who have supported the *Australian Orchid Review* over many years. Subscribers may claim a rebate on their outstanding subscription balance. Thank you to the various authors and photographers who have made significant contributions. All this work is part of Australian orchid history and is archived. I especially wish to thank my co-owner Caitlin for the magnificent job she has done with administrative matters and much behind-the-scenes work with subscribers and advertisers. Caitlin is not an "orchid person" yet has supported and encouraged me over the past decade or so. Nadalie (from *Red Diamond Design*) has done a sterling and very professional job as our typesetter and graphic designer for over ten years and has been my conscience in meeting printing deadlines.

For the time being, we will maintain our Facebook page, as well as our website, for the sale of books and back issues. We are keeping the name *Australian Orchid Review* as well as *Hills Orchid Publishing*, as we intend on publishing a number of new limited print run texts on orchids and other collectable plants over the next decade.

I wish you all good health and continuing joy with your orchids. **www.australianorchidreview.com.au** ■

David P. Banks

DECEMBER 2019 – JANUARY 2020
Volume 84 – No. 6

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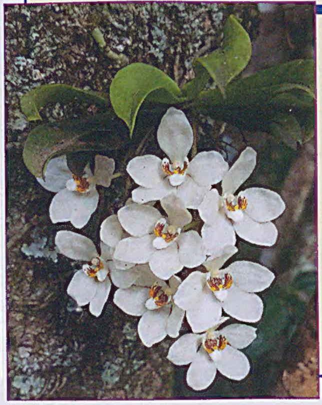


Cover Shot

Sarcochilus falcatus
from the upper
Blue Mountains
of New South Wales.
This is the Type species
of the genus.
Photo: David P. Banks 2019

The 2020 Guide to Australian *Sarcochilus* Species

Text and photos by David P. Banks

The Genus *Sarcochilus* was named by the Scottish botanist Robert Brown in 1810, with the Type species being *Sarcochilus falcatus*. The name *Sarcochilus* is derived from the Greek *sarcos* (fleshy), *-cheilos* (lip), referring to the fleshy labellum in most species. Many of the species are small single-growth epiphytes, which may clump as older plants; however some are diminutive twig epiphytes with extensive root systems. Some are rock dwellers, growing as clumping lithophytes. They prefer areas with high humidity, strong air movement, and grow in humid cooler gullies, gorges and the fringes and interior of rainforests.

Sarcochilus may also be recognised by the following diagnostic features; smooth & fleshy roots, flat or channelled leaves, persistent leaf bases, flowers lasting several days - opening in succession, sepals & petals of similar size and shape, a 3-lobed labellum hinged on a column foot.

I recognise 23 species, 20 being endemic to Australia, with 3 species in New Caledonia that are closely related to Australian taxa. There are no *Sarcochilus* in New Guinea.

Australian *Sarcochilus* Species with Years of Description, Type Location & Flowering Times

Species	Year	Type Location	State	Flowers
Sarcochilus falcatus	1810	Hunter River, NSW	V/N/Q	Jun-Oct
Sarcochilus parviflorus	1838	"New Holland"	Q	Aug-Oct
Sarcochilus olivaceus	1839	Sydney, NSW	N/Q	Sep-Jan
Sarcochilus dilatatus	1859	Moreton Bay, Qld	Q/N	Sep-Mar
Sarcochilus hillii	1860	Moreton Bay, Qld	N/Q	Nov-Dec
Sarcochilus australis	1861	Circular Head, Tas	T/V/N	Oct-Dec
Sarcochilus ceciliae	1865	Townsville, Qld	Q	Nov-Feb
Sarcochilus fitzgeraldii	1870	Bellinger River, NSW	N/Q	Oct-Nov
Sarcochilus hartmannii	1874	Toowoomba, Qld	N/Q	Oct-Nov
Sarcochilus eriochilus	1891	Tweed River, NSW	Q/N	Nov-Jan
Sarcochilus weinthalii	1904	Toowoomba, Qld	Q/N	Sep-Oct
Sarcochilus spathulatus	1927	Tamborine Mt., Qld	Q/N	Sep-Nov
Sarcochilus tricalliatus	1951	Mount Dryander, Qld	Q	Nov-Jan
Sarcochilus roseus	1969	Tinaroo Falls, Qld	Q	Nov-Jan
Sarcochilus serrulatus	1972	Evelyn Tableland, Qld	Q	Aug-Oct
Sarcochilus aequalis	1991	Oxley Wild Rivers, NSW	N	Aug-Sep
Sarcochilus hirticalcar	1998	McIllwraith Range, Qld	Q	Sep-Feb
Sarcochilus loganii	2017	Mount Walsh, Qld	Q	Aug-Sep
Sarcochilus setosus	2018	Tully Falls, Qld	Q	Dec-Mar
Sarcochilus niveus	2019	Dorrigo, NSW	N/Q	Oct-Dec

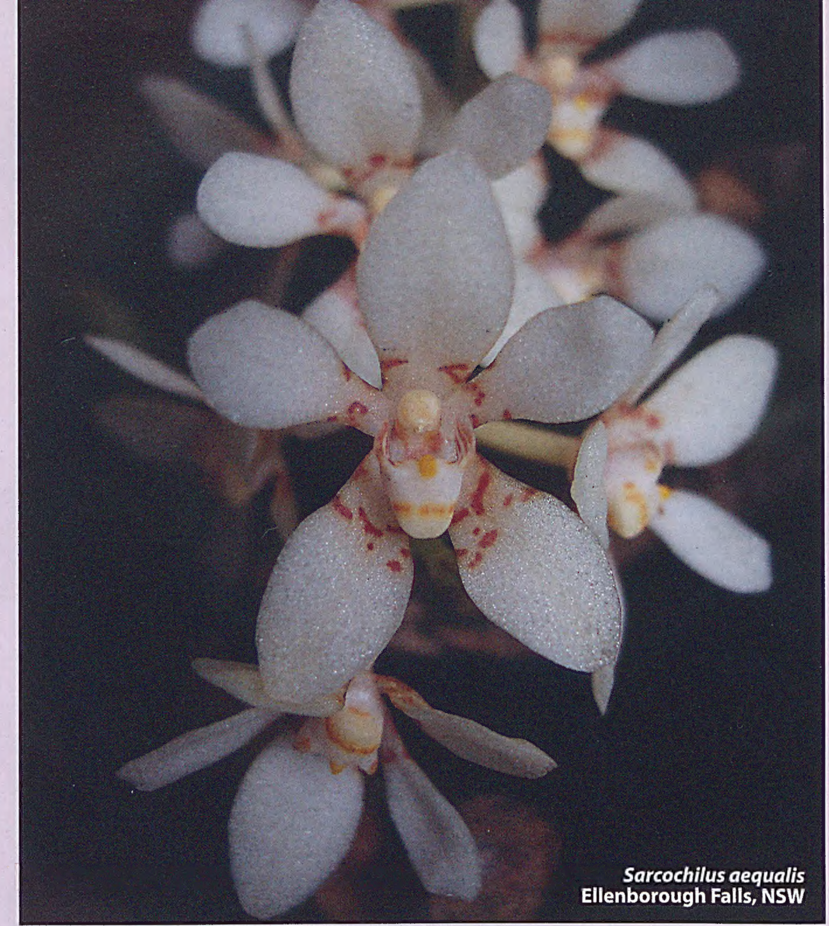
Note: *Sarcochilus australis* was originally named as *Gunnia australis* in 1835. *Sarcochilus tricalliatus* was originally named *Sarcochilus hillii* var. *tricalliatus* in 1936. *Sarcochilus roseus* was described as *Sarcochilus ceciliae* subsp. *roseus* in 1967. With *Sarcochilus hirticalcar* named as *Parasarcochilus hirticalcar* in 1967.

The A to Z of Australian *Sarcochilus* Species

▶ *Sarcochilus aequalis*

D.L.Jones & M.A.Clem.

This New South Wales endemic species was named in 1991, yet previously known for decades as the "southern form" of *Sarcochilus hartmannii*, despite there being many significant differences in flower shape, colour, flowering time and plant habit. It is a rare lithophytic species with a disjunct distribution from the Dorrigo Plateau, Carrai Plateau south to the headwaters of the Manning River. Wild populations have suffered significantly from illegal collecting and bushfires. Up to 14 yellowish-cream flowers are produced with reddish-brown markings at the base of the segments, overall bloom is about 20 mm tall. The flower shape may vary between natural populations, with the labellum significantly larger and different shape to that of *Sarcochilus hartmannii*. There is an anthocyanin-free (albino) form in cultivation that may be classified as *Sarcochilus aequalis* forma *albus*. Flowers August to September.

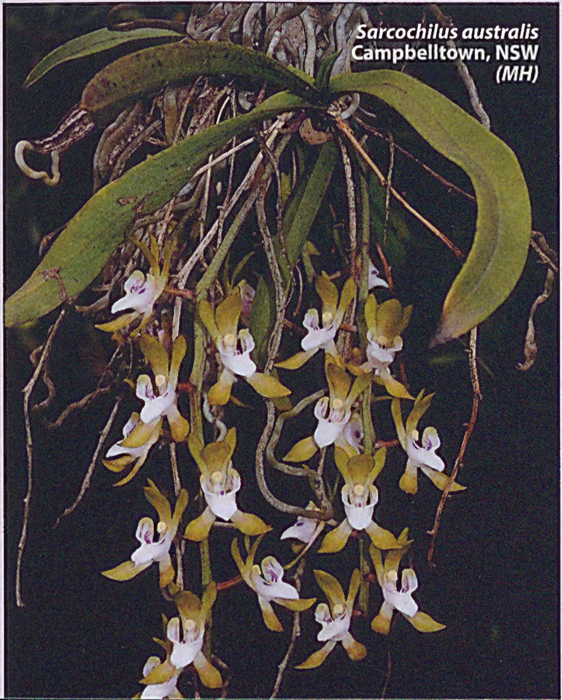


Sarcochilus aequalis
Ellenborough Falls, NSW

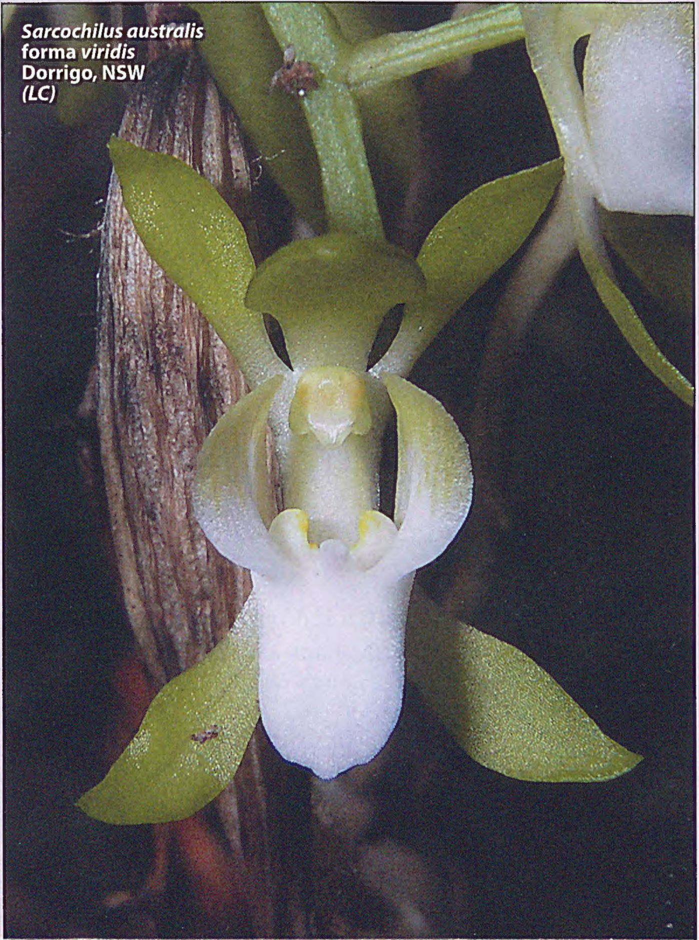
▼▶ *Sarcochilus australis*

(Lindl.) Rchb.f.

Was originally described as *Gunnia australis* from specimens collected near Burnie (Emu Bay), Tasmania in 1833. It is distributed from the north and east coasts of Tasmania, far eastern Victoria, east coast of New South Wales and Northern Tablelands to Glen Innes, Kyogle and near Tenterfield.



Sarcochilus australis
Campbelltown, NSW
(MH)

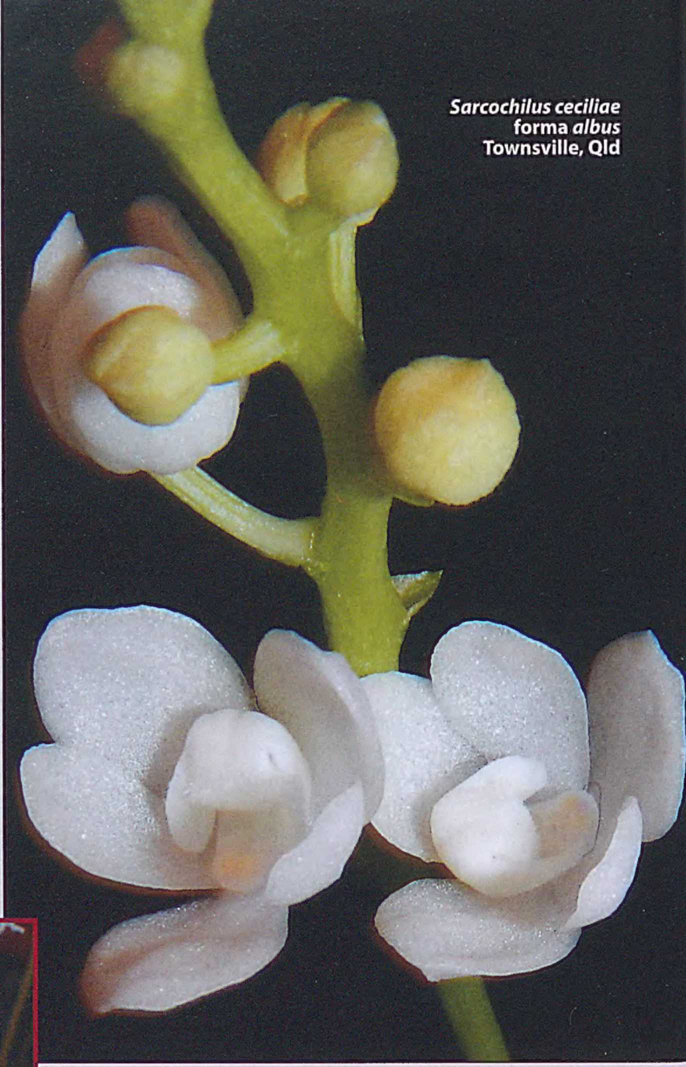


Sarcochilus australis
forma *viridis*
Dorrigo, NSW
(LC)

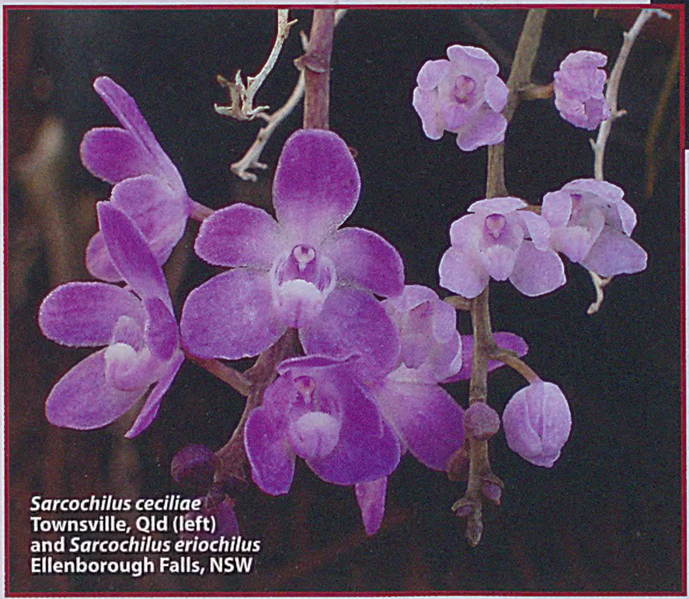
Throughout its range there is little variation in flower shape, however in the northern populations around Glen Innes many individuals have attractive brick-red to brownish blooms, whereas southern plants tend to be more olive to apple green. In Tasmania and southern Victoria the "Butterfly Orchid" prefers to grow on the trunk and major branches of rainforest trees, yet in New South Wales it is most common in shaded steep gullies on the outer branches as a precarious twig epiphyte. This small epiphyte may produce up to a dozen (often less) 20 mm tall blooms on a pendulous inflorescence. I have seen several anthocyanin-free (albino) forms, with green and white blooms, that may be classified as *Sarcochilus australis* forma *viridis*. Flowers October to December.

▼ ▶ *Sarcochilus ceciliae* F.Muell.

The lithophytic "Fairy Bells" orchid was named in 1865 based on specimens collected on Castle Hill, behind Townsville, north-eastern Queensland. This species forms dense clumps over time with the fleshy leaves having wart-like spots. Plants grown in strong light have a reddish cast and a vigorous root system. It is endemic to Queensland, from the Atherton Tableland south to Kroombit Tops and Bundaberg. Up to 14 pink to darker rose cupped 10 mm blooms are produced sequentially, all upward facing on the inflorescence. The lateral lobes and midlobe of the labellum are separate and covered with short dense hair. Pure white anthocyanin-free (albino) forms may be classified as *Sarcochilus ceciliae* forma *albus*. Flowers November to March.



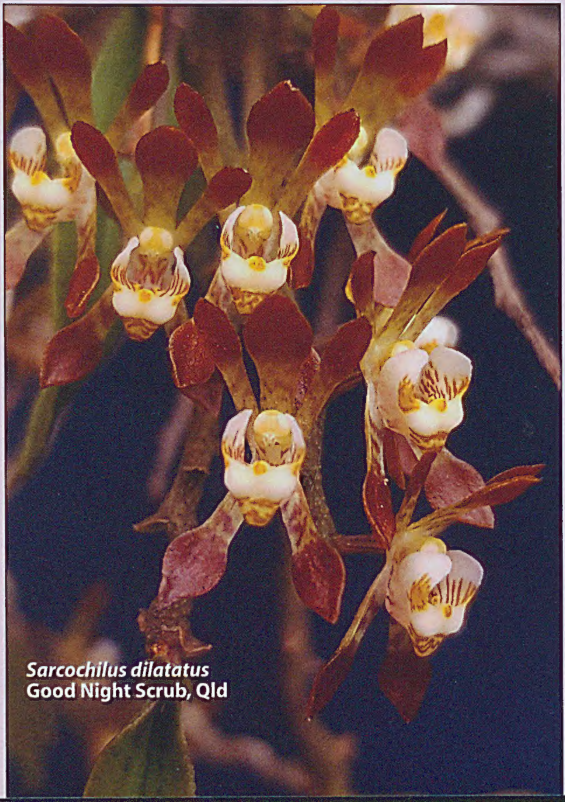
Sarcochilus ceciliae
forma *albus*
Townsville, Qld



Sarcochilus ceciliae
Townsville, Qld (left)
and *Sarcochilus eriochilus*
Ellenborough Falls, NSW

▶ *Sarcochilus dilatatus* F.Muell.

This diminutive twig epiphyte, named in 1859, has a restricted distribution yet may be locally common. It is found in dry scrub in Queensland from the Carnarvon Gorge, Calliope Range to Warwick and Toowoomba and it is extremely rare in New South Wales, as the major known population, near Nymboida, may have perished in the 2019 bushfires. The widely opening chocolate to reddish-brown to yellowish-caramel flowers of this

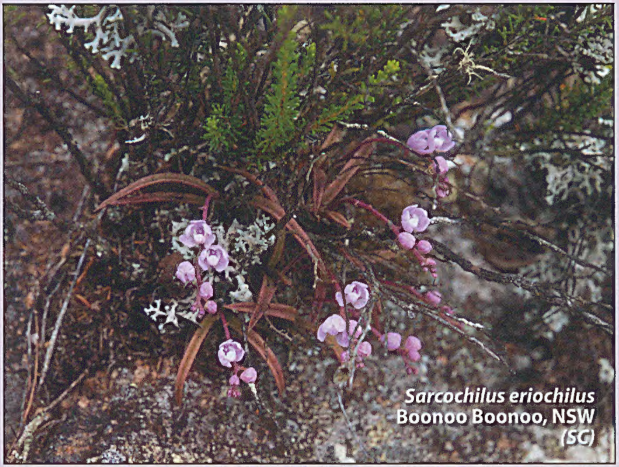


Sarcochilus dilatatus
Good Night Scrub, Qld

species are 18 mm tall and last three-four days and open sporadically as the inflorescence extends with up to 14 blooms over several weeks. Robust individuals may produce new plants of the end of the precious season's inflorescence. Flowers September to March.

▶ *Sarcochilus eriochilus* Fitzg.

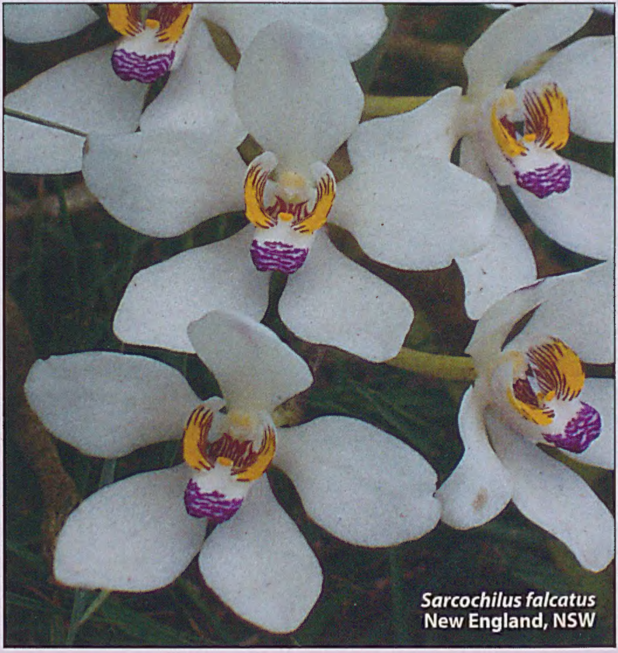
This lithophytic species was originally described as a variety of *Sarcochilus ceciliae*. It differs in having significantly smaller blooms (6 mm) that are always very pale pink; the plant habit is also much finer with narrow leaves. It has a disjunct distribution from Gympie to the Toowoomba district and McPherson Range in Queensland, from the Border Ranges, Oxley Wild Rivers National Park, Glenugie Peak (near Grafton) to Ellenborough Falls at the headwaters of the Manning River in New South Wales. Flowers November to January.



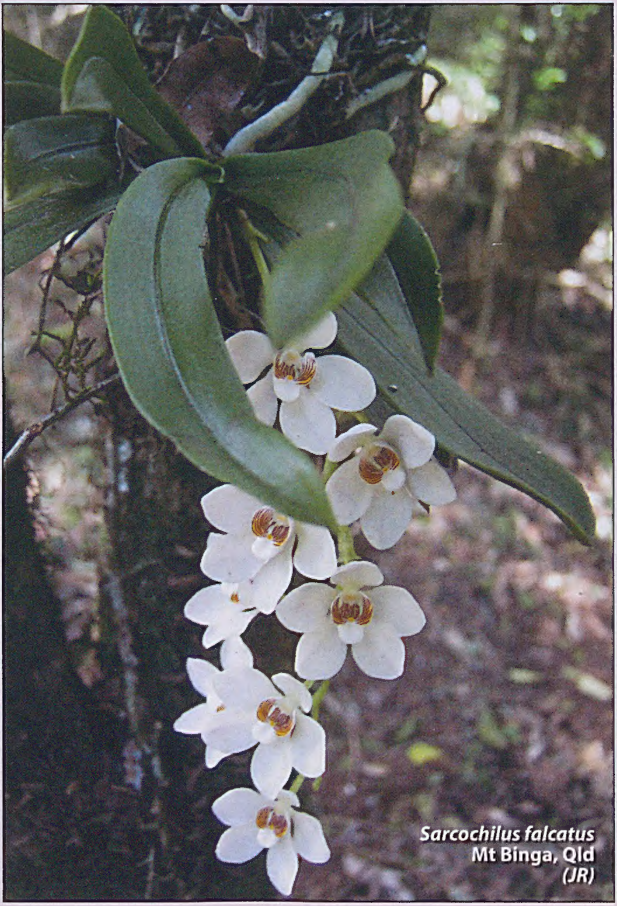
Sarcochilus eriochilus
Boonoo Boonoo, NSW
(SC)

▼◢ *Sarcochilus falcatus* R.Br.

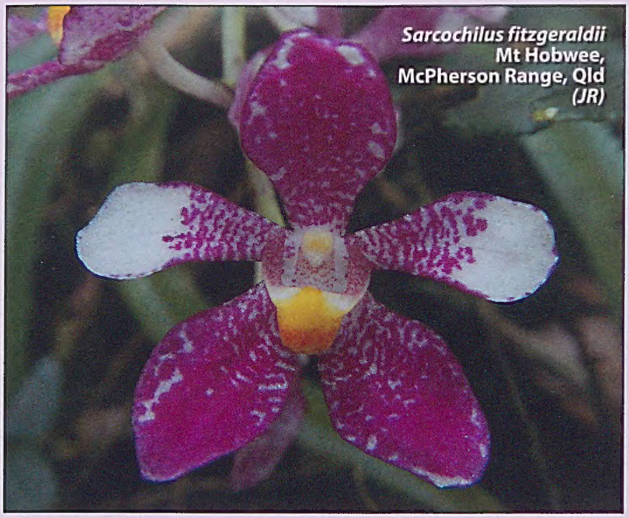
This variable fragrant epiphytic species is well known as the "Orange Blossom Orchid". It is the most common *Sarcochilus* species, with the widest distribution and altitudinal range – from 5-1400 metres altitude. It is also the Type species (1810) of this genus, with the original specimens collected around the Hunter River region near Newcastle. It is found from Mt Finnigan and the north-east Queensland wet tropics to the McPherson Range in south-eastern Queensland, the Border Ranges to Nadgee in New South Wales to far east Victoria. Interestingly it appears absent from Eungella, west of Mackay, despite looking like a suitable habitat, with a number of its host species in abundance. It is a highly variable species in fragrance, flower shape, size and colour of the labellum. *Sarcochilus montanus* was named in 1879 for plants with a prominent maroon stripe on the back of the sepals, yet such plants may also occur in other populations. The base flower colour in this species is a glistening creamy-white, varying in size from 20-60 mm with up to 12 blooms on the inflorescence. The labellum is between 4-8 mm long, white to cream, usually with orange, yellow patches on the lateral lobes that are overlaid with red or purple stripes and purple on the midlobe. Some of these "purple chin" forms are most attractive. The old inflorescences dry black in this species. Anthocyanin-free (albino) forms may be classified as *Sarcochilus falcatus* forma *albus*, but these should not be confused with the recently described *Sarcochilus niveus*. Flowers June to October.

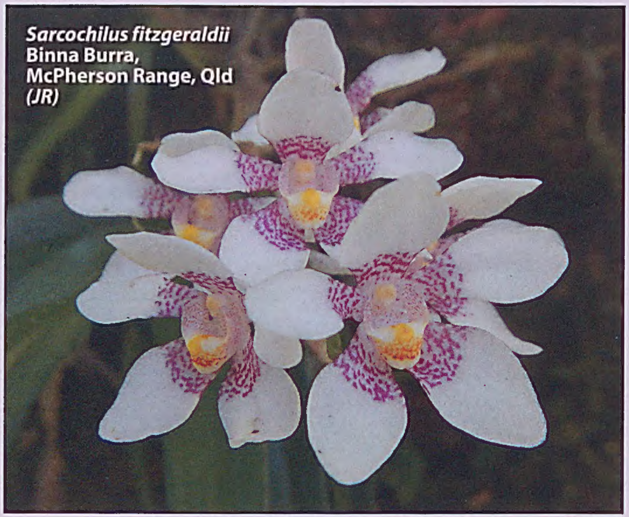


Sarcochilus falcatus
New England, NSW



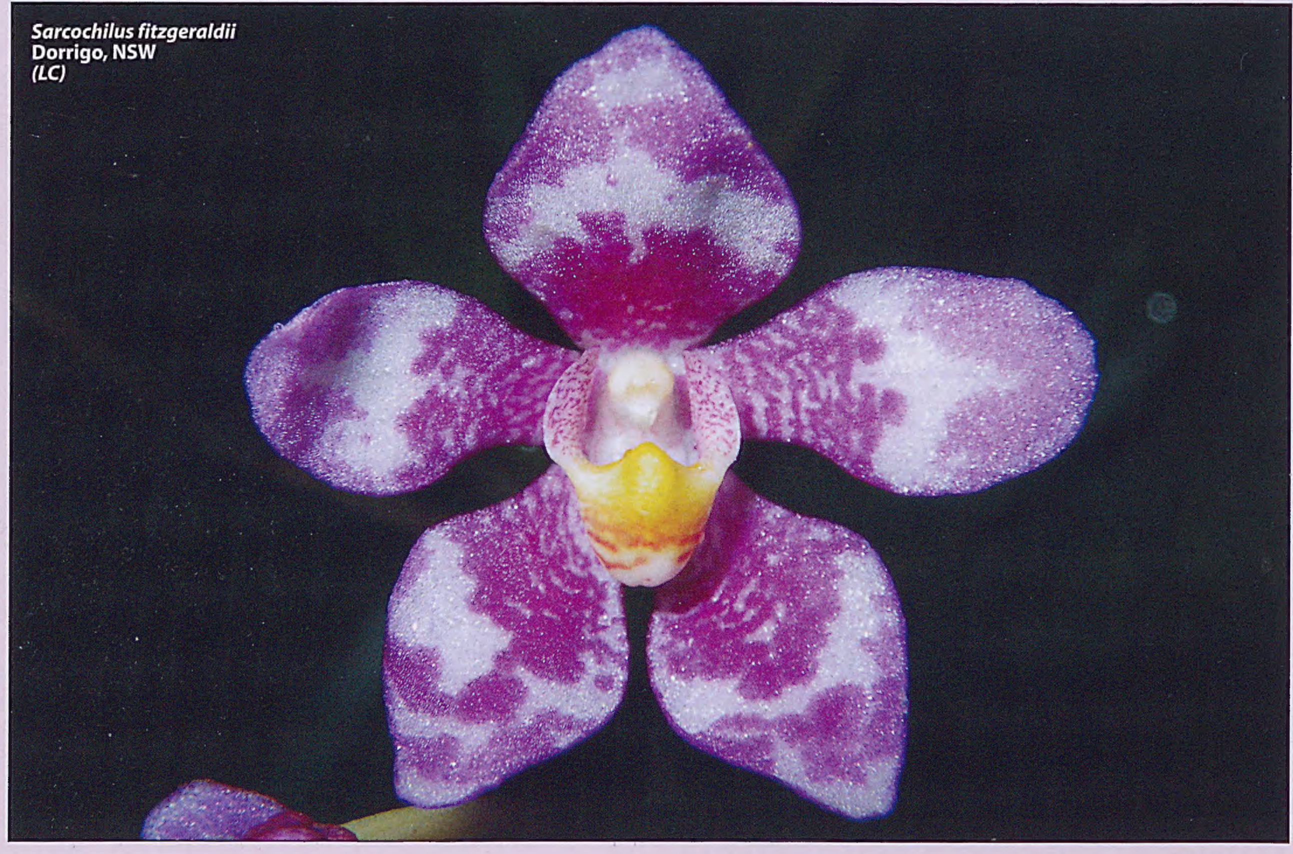
Sarcochilus falcatus
Mt Binga, Qld
(JR)


Sarcochilus fitzgeraldii
Mt Hobwee,
McPherson Range, Qld
(JR)


Sarcochilus fitzgeraldii
Binna Burra,
McPherson Range, Qld
(JR)

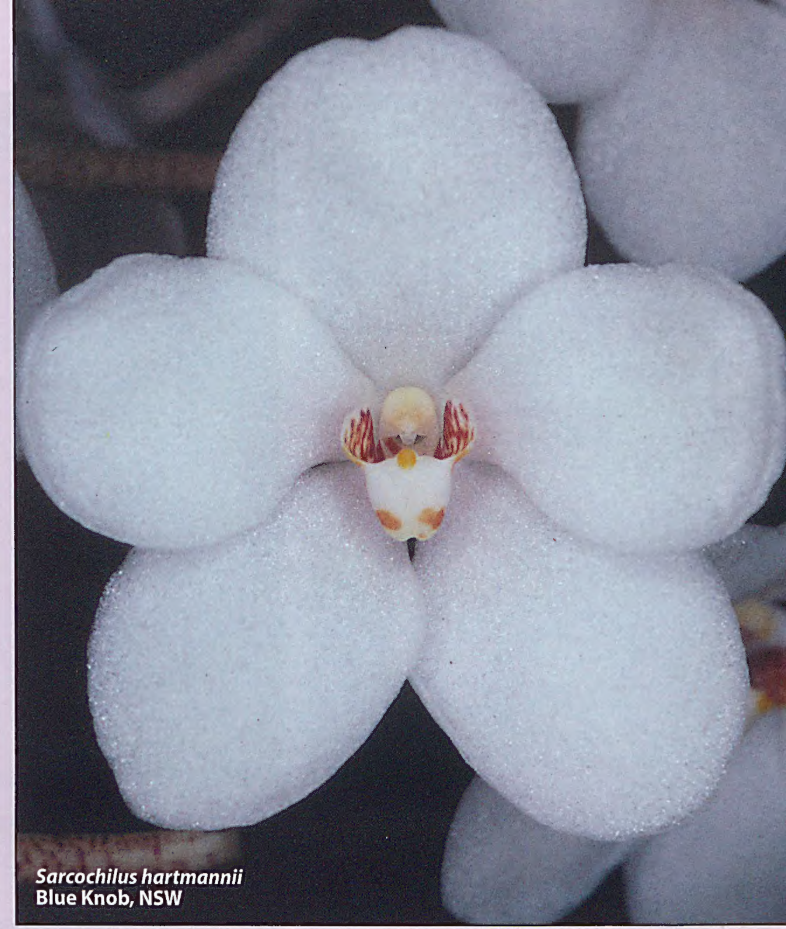
▲▼ *Sarcochilus fitzgeraldii* F.Muell.

This is a stunning shade-loving lithophytic species that is generally found on boulders, cliffs or ravines in rainforest near running water. It has a quite restricted distribution and is found from Dorrigo in northern New South Wales to the McPherson Range in Queensland up to Maleny where it is rare. This species has suffered badly from overcollection, despite readily easily propagated from seed. It has a semi-pendulous habit and in suitable habitat may colonise rockfaces. It produces up to ten, 25-35 mm white flowers with varying bands and blotching of crimson at the base of the segments. Often flowers on the same stem will exhibit different patterning, often become darker towards the end of the inflorescence. Some of the solid coloured cultivars (described as *Sarcochilus fitzgeraldii* var. *aemulus*, but not recognised as a botanical variety) will also vary from year to year. The thick textured and waxy labellum is distinctive and significantly larger than the labellum of the related *Sarcochilus hartmannii*. Anthocyanin-free (albino) forms may be classified as *Sarcochilus fitzgeraldii* forma *albus*. Flowers in October to November.


Sarcochilus fitzgeraldii
Dorrigo, NSW
(LC)

▶ ◢ *Sarcochilus hartmannii* F.Muell.

Arguably the most popular *Sarcochilus* species in cultivation. Over the past few decades there has been much linebreeding and proliferation from seed of this lithophytic species. It has a restricted distribution on large rocks and cliff lines of volcanic origin, generally at altitude. It is roughly found from the Toowoomba region of Queensland to the Border Ranges in New South Wales down to the Clarence River. The 20-30 mm white blooms are crowded on an inflorescence (green to purple) of up to 20 flowers, with varying degrees of fine crimson to brown spots at the base of the tepals. Plants of this orchid growing in exposed situations are often partly shaded by summer grasses. *Sarcochilus hartmannii* is variable in leaf size and thickness, flower size, shape, width of the tepals and colouration around the centre of the flower. A significant variant from Blue Knob near Nimbin, NSW, has very thick, fleshy, deep green leaves and pendulous to stiffly erect racemes with thick-textured glistening white flowers with a small labellum. Forms from the Numinbah Valley have wider concentric bands of brownish-maroon colour in the centre of the flowers. It is highly likely that Fitzgerald's *Sarcochilus rubricentrum* from 1880 is of this form, yet the location was given as "Cairns district" North Queensland. There is a natural hybrid between *Sarcochilus hartmannii* and *Sarcochilus fitzgeraldii* that


Sarcochilus hartmannii
Blue Knob, NSW

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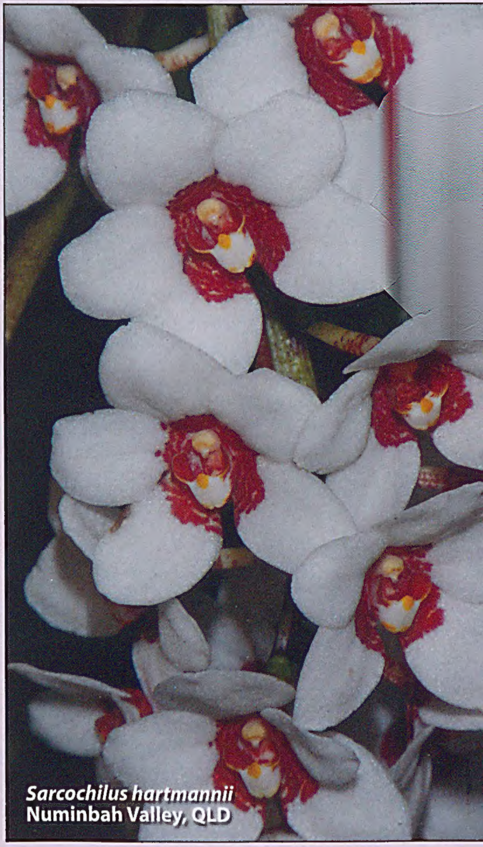

Sarcochilus hartmannii
Numinbah Valley, QLD

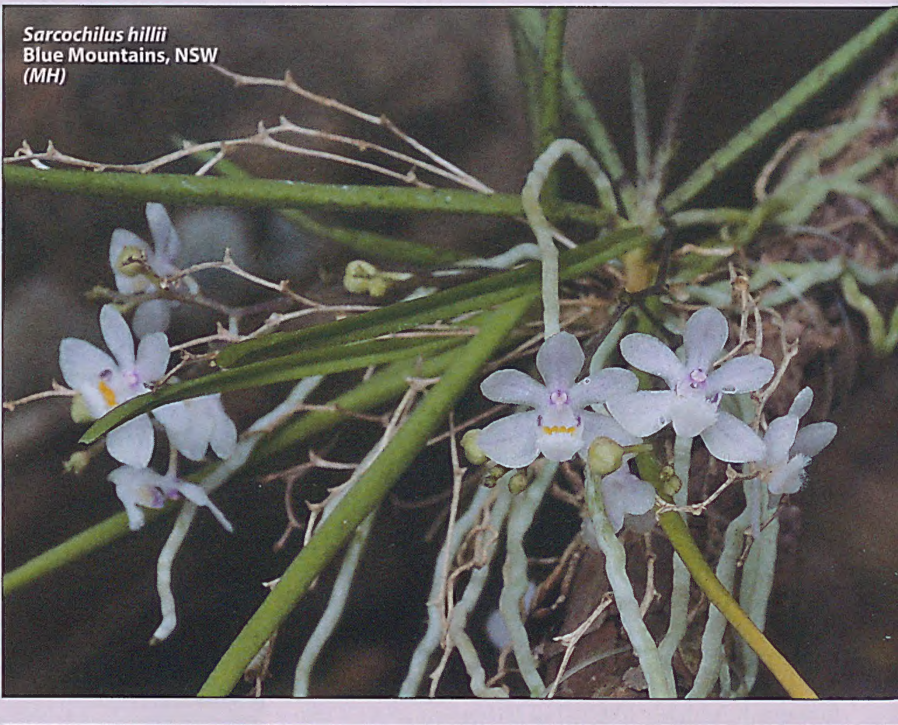
was discovered by David Banks and John Roberts in the Numinbah Valley in 1984. Anthocyanin-free (albino) forms may be classified as *Sarcochilus hartmannii* forma *albus*. This species is often incorrectly spelt as "*hartmanii*", remember it has 2 n's. Flowers in October to November.

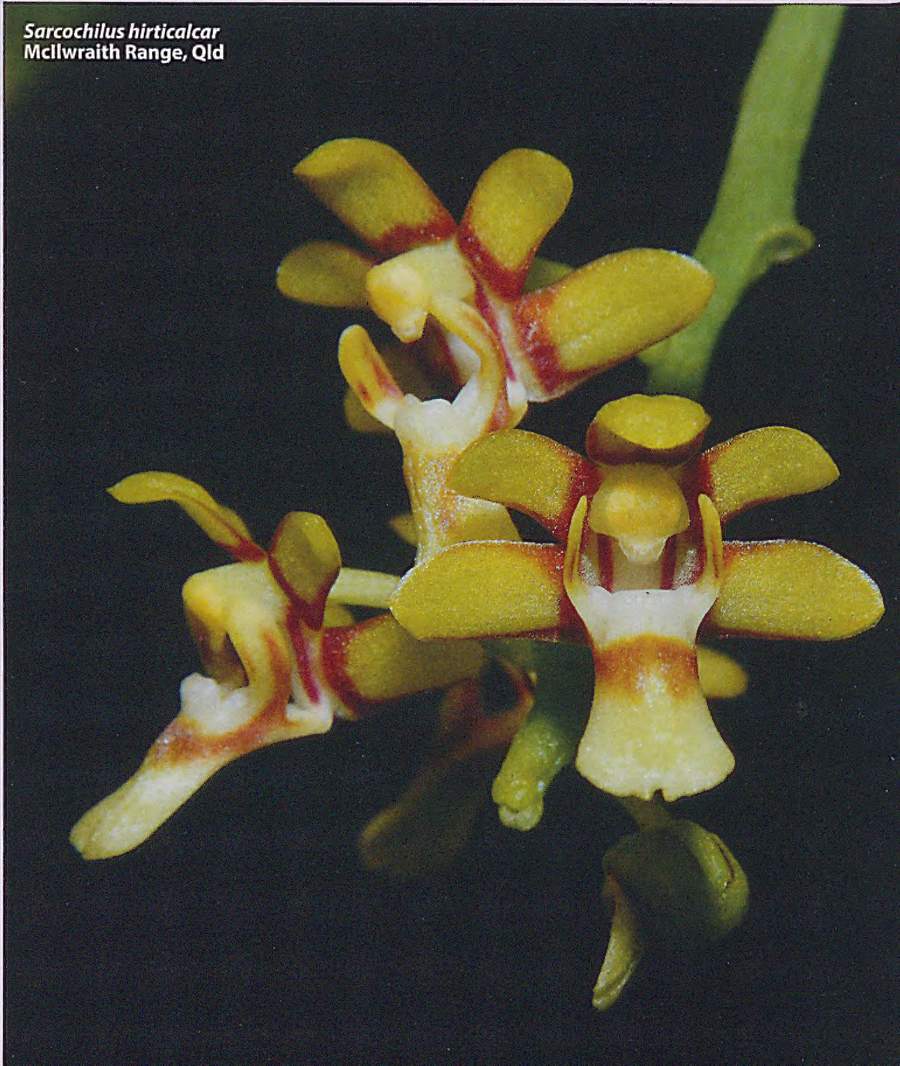
▶ *Sarcochilus hillii*
(F.Muell.) F.Muell.

This delicate twig epiphyte is probably the smallest flowered species in the genus. It has often been confused with *Sarcochilus minutiflos* (1913) which is simply a later synonym, named 53 years after *Sarcochilus hillii*. It is found from Rockhampton to the McPherson Range in Queensland to the Border Ranges in New South Wales down the coast to near Bega. The 8 mm flowers are pale pink to white, with 4 prominent stout rounded yellow calli on the inside of the labellum. The rhachis has the flowers arranged in a zig-zag pattern. This species blooms sequentially so may be in flower for many weeks, each glistening bloom lasting about 3 days. Numerous references have noted this species as also occurring in New Caledonia. This is incorrect as it has been confused with *Sarcochilus thycola* (N.Hallé) M.A.Clem., D.L.Jones & D.P.Banks (previously as *Sarcochilus hillii* var. *thycola*). Flowers November to December.

▶ *Sarcochilus hirticalcar*
(Dockrill) M.A.Clem. & B.J.Wallace

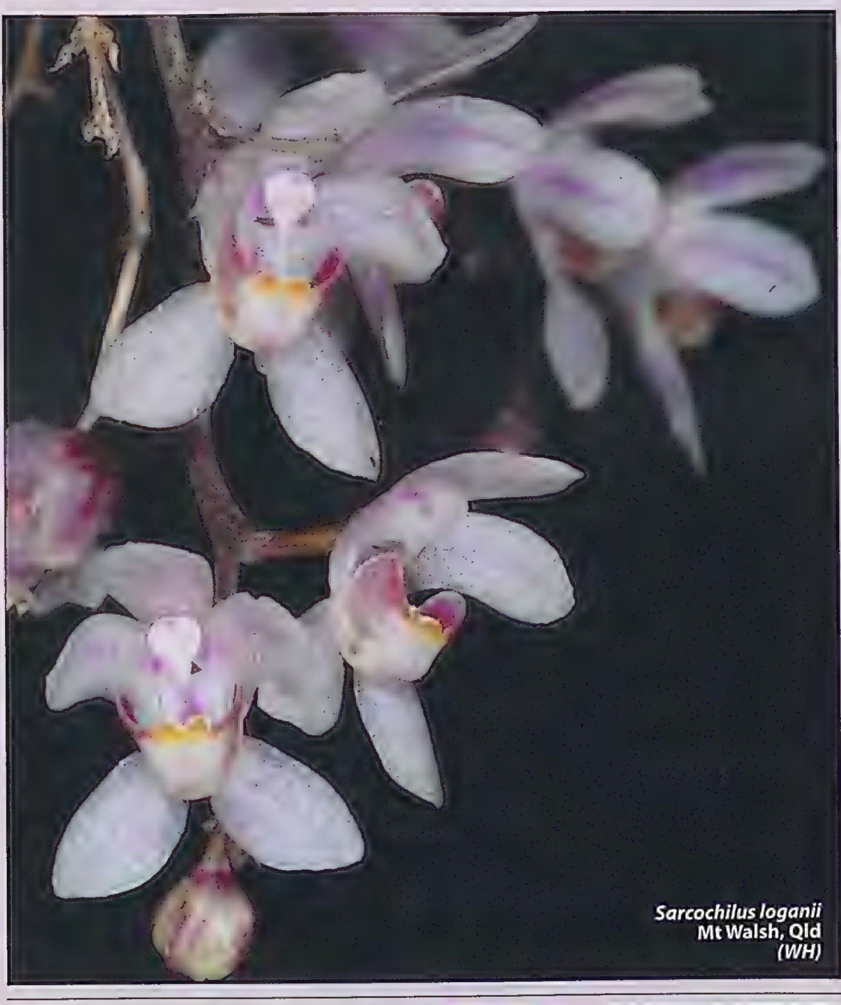
The "Harlequin Orchid" is the northernmost *Sarcochilus* species that was originally named as *Parasarcochilus hirticalcar* by Alick Dockrill in 1967. The name *hirticalcar* translates to hairy spur, in reference to the internal hairs at the end of the labellum. It is isolated from any other *Sarcochilus* and is endemic to the McIlwraith Range on Cape York Peninsula in north-eastern Queensland, where it grows in rainforest or near streams. There is little variation in shape or colouration between individual plants. In the wild up to 8 blooms are produced, yet in cultivation some specimens have produced up to 16 blooms over many months. Often only one to four blooms are out at the same time. It is unlikely to be confused with any other species. Flowers September to February.


Sarcochilus hillii
Blue Mountains, NSW
(MH)


Sarcochilus hirticalcar
McIlwraith Range, Qld

▼ *Sarcochilus loganii* D.L.Jones & M.A.Clem.

This recently described rare species (2017) had previously been confused with *Sarcochilus tricalliatus* and *Sarcochilus minutiflos*. It is distinct from *Sarcochilus tricalliatus* and *Sarcochilus minutiflos* is now known to be simply a later name for the orchid well known as *Sarcochilus hillii*. This seldom seen new species is endemic to the Wide Bay District of South-eastern Queensland. It has small white blooms with a pink flush, plus a line of pink along the reverse of the segments. Up to eight, 7 mm flowers are produced on a short inflorescence. Flowers August to September.



Sarcochilus loganii
Mt Walsh, Qld
(WH)

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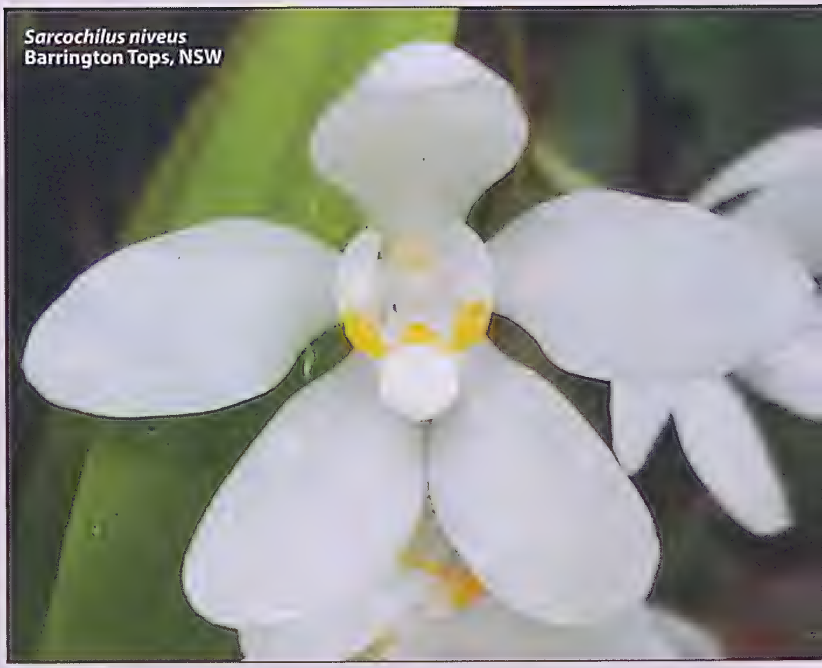
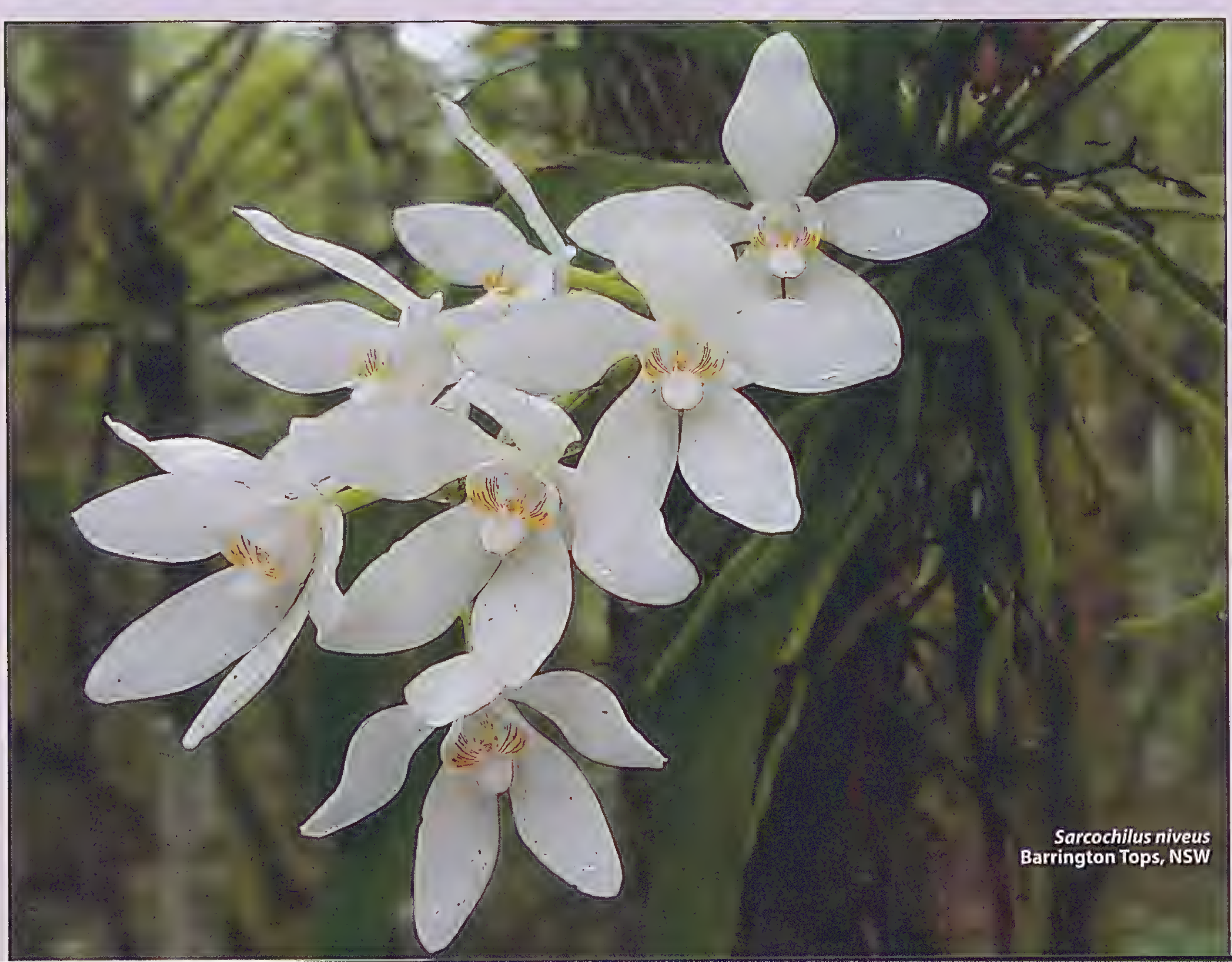
▶ ▼ *Sarcochilus niveus*

D.L.Jones & D.P.Banks



Sarcochilus niveus
Barrington Tops, NSW

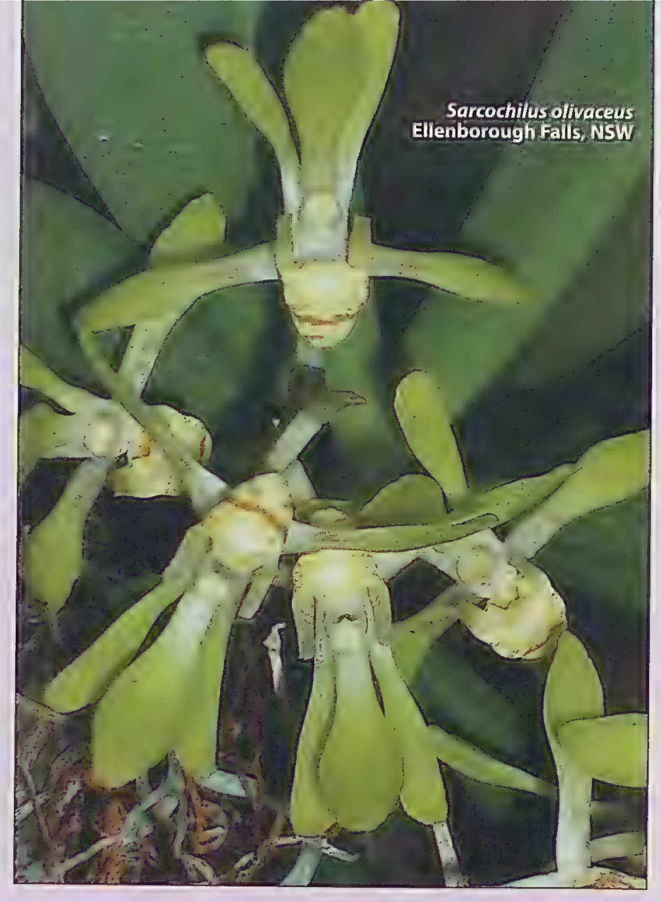
This new species (2019) has been well known to native orchid enthusiasts for decades as the "big white" or "late-flowering form" of *Sarcochilus falcatus*. It is obviously related to the very similar *Sarcochilus falcatus* but consistently differs in a number of important diagnostic features. The flowers of *Sarcochilus niveus* are always pure white, never cream, plus the labellum shape, colour and markings (pale yellow blotches over white, with fine brown striations) are consistent throughout this taxons distribution. Also there are never any purple or orange markings on the labellum. The side-lobes are narrower and do not flare as in most examples of *Sarcochilus falcatus*. We know of at least three locations where both species grow together, yet they never interbreed as their flowering times do not overlap. *Sarcochilus niveus* is distributed from north of Toowoomba in the Darling Downs District to Mt Glorious and the Lamington Plateau in Queensland and from the Border Ranges to the northern end of the Watagan Mountains on the Central Coast of New South Wales. Dorrigo, NSW is the Type location. In New South Wales it tends to be found around 350-500 m, 1000 m around the Border Ranges and a bit lower around the Toowoomba region. Up to 14 pure white flowers are produced with the size ranging from 30-55 mm. Flowers October to December.



Sarcochilus niveus
Barrington Tops, NSW

▶ *Sarcochilus olivaceus* Lindl.

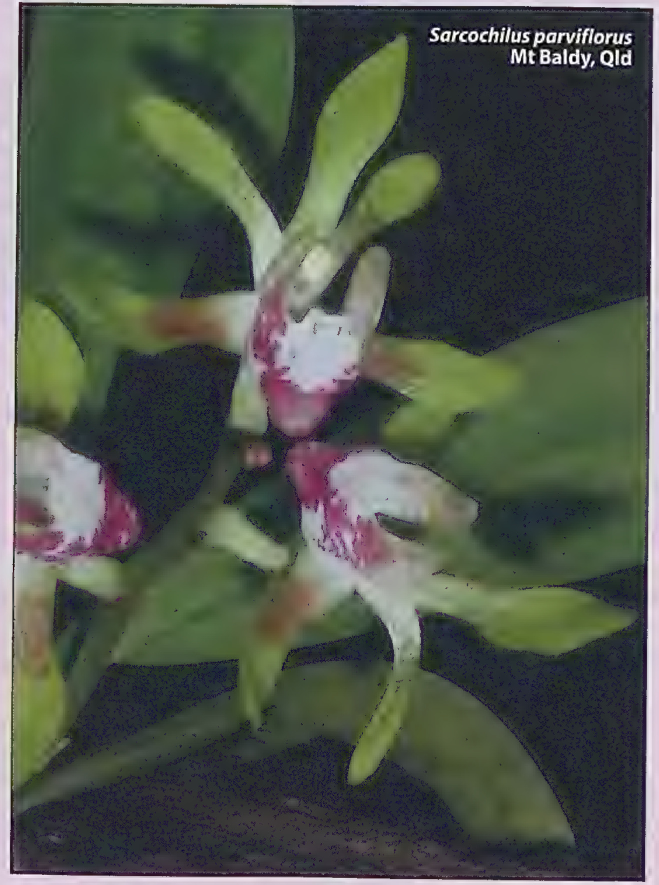
There has been much confusion over the status between this species and *Sarcochilus parviflorus*. Both were described by John Lindley, only a few months apart. The Types of both taxa held at the Lindley Herbarium at Kew Gardens shows no significant differences between specimens and sketches of each species. The label attached to the Type specimen of *Sarcochilus olivaceus* reads "A new *Sarcochilus* (*olivaceus*) from Sydney – Loddiges May 1 1838, next to *S. parviflorus* from which it differs in the lip". In the published protologue it states "The flowers are small and yellowish orange green". Colour is generally not a good arbitrator, however in this example, the colours described are important as they are consistent. *Sarcochilus olivaceus* always has green petals and sepals with a pale yellowish labellum with brownish orange markings. It never has a pure white labellum with purple lines or markings. I am satisfied this describes the predominantly NSW shade and moisture loving species that grows near permanent streams and rainforest. It can produce up to 18 blooms on the inflorescence (6-10 is normal), that are about 25-35 mm tall. It is found from Mumbulla Mountain near Bega north to the Border Ranges in New South Wales, at higher altitude at Springbrook and the McPherson Range with isolated pockets to Maleny and Montville, Queensland. Many people incorrectly spell the epithet with an extra o ("*olivaceous*"). Flowers September to January.



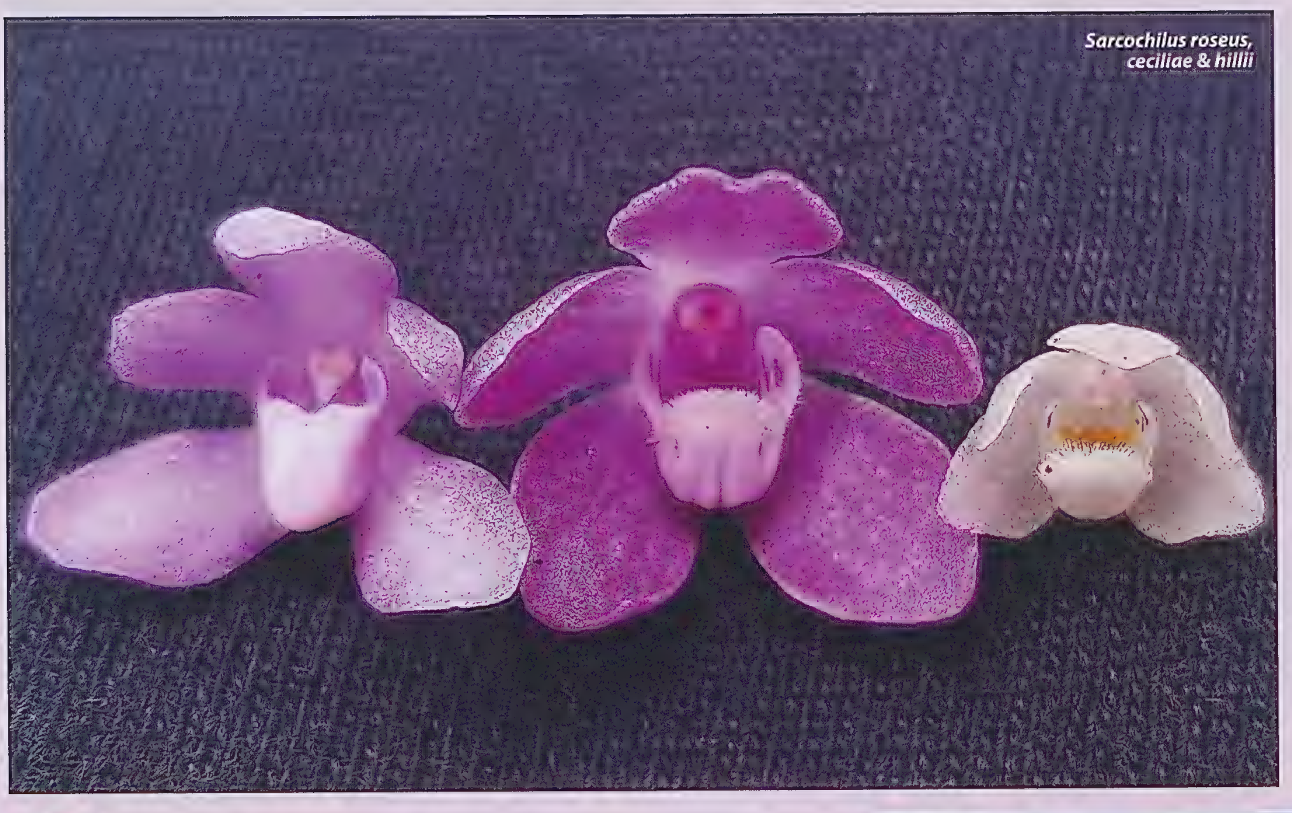
Sarcochilus olivaceus
Ellenborough Falls, NSW

▶ *Sarcochilus parviflorus* Lindl.

This species was also named in 1838 by John Lindley based on a plant cultivated by George Loddiges and originally collected from "New Holland". Lindley obviously could see differences between *parviflorus* (1838) and *olivaceus* (1839), subsequently describing them as two separate entities. In the protologue with the Type specimen Lindley states: "The flowers are green, with a few spots of dull purple in the sepals. The labellum is less green, beneath indeed almost white, banded with dull purple..." True *olivaceus* never has a white labellum, it also never has purple banding or spotting. Yet *parviflorus* always has a white labellum (never a yellowish green background) with purple bands on the labellum (in *olivaceus* they are orange to brown bands). There is enough information given in both protologues to confidently interpret and apply the correct names to what Lindley was describing. This now moves *Sarcochilus borealis* (1989) and *Sarcochilus argochilus* (2006) into synonymy. The tepals are generally olive green, often with some copper tones and markings at the base of the segments. Some examples have quite striking purple blotched markings over the white labellum. This is an endemic Queensland species found from the Mount Windsor Tableland and Mount Lewis through the wet tropics to Toowoomba and the Numinbah Valley. Some forms from Many Peaks Range, Eungella, Kroombit Tops and Toowoomba have more brownish tones throughout the flower. In north-east Queensland it is generally a rainforest species, whereas it grows in more open dryer scrub towards the southern limits of its range. Flowers August to October.

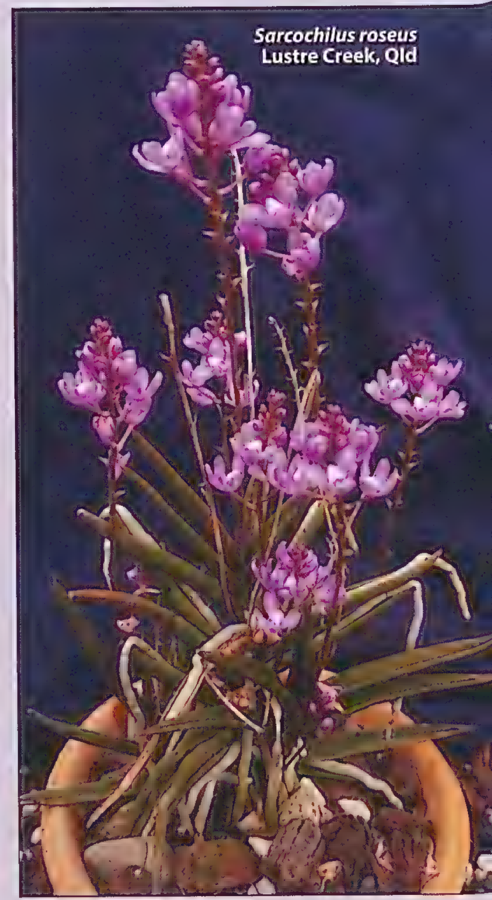


Sarcochilus parviflorus
Mt Baldy, Qld


Sarcochilus roseus, ceciliae & hillii

▲▼▶ *Sarcochilus roseus* (Clemesha) Clemesha

This is a poorly known and understood musk-pink flowered species that is constantly confused with *Sarcochilus ceciliae,* until a couple of key diagnostic features are pointed out. Plants, with unspotted leaves, form small clumps, often with stilt roots. It is also rare and localised in its distribution in north-eastern Queensland, being recorded from the western side of Mount Lewis, Mount Molloy to the Atherton Tableland. The labellum is relatively smooth and slipper-like, without the tufted hairs and incisions seen in both *ceciliae* and *eriochilus.* Despite the name, some forms of *ceciliae* are darker in colour than *roseus*. It is very closely related to *Sarcochilus rarus* Schltr. from New Caledonia that has more open, white to cream flowers. Sadly many books, websites and publications continue to show images of darker forms of *ceciliae* under the name of *roseus*. Flowers November to January.


Sarcochilus roseus
Lustre Creek, Qld

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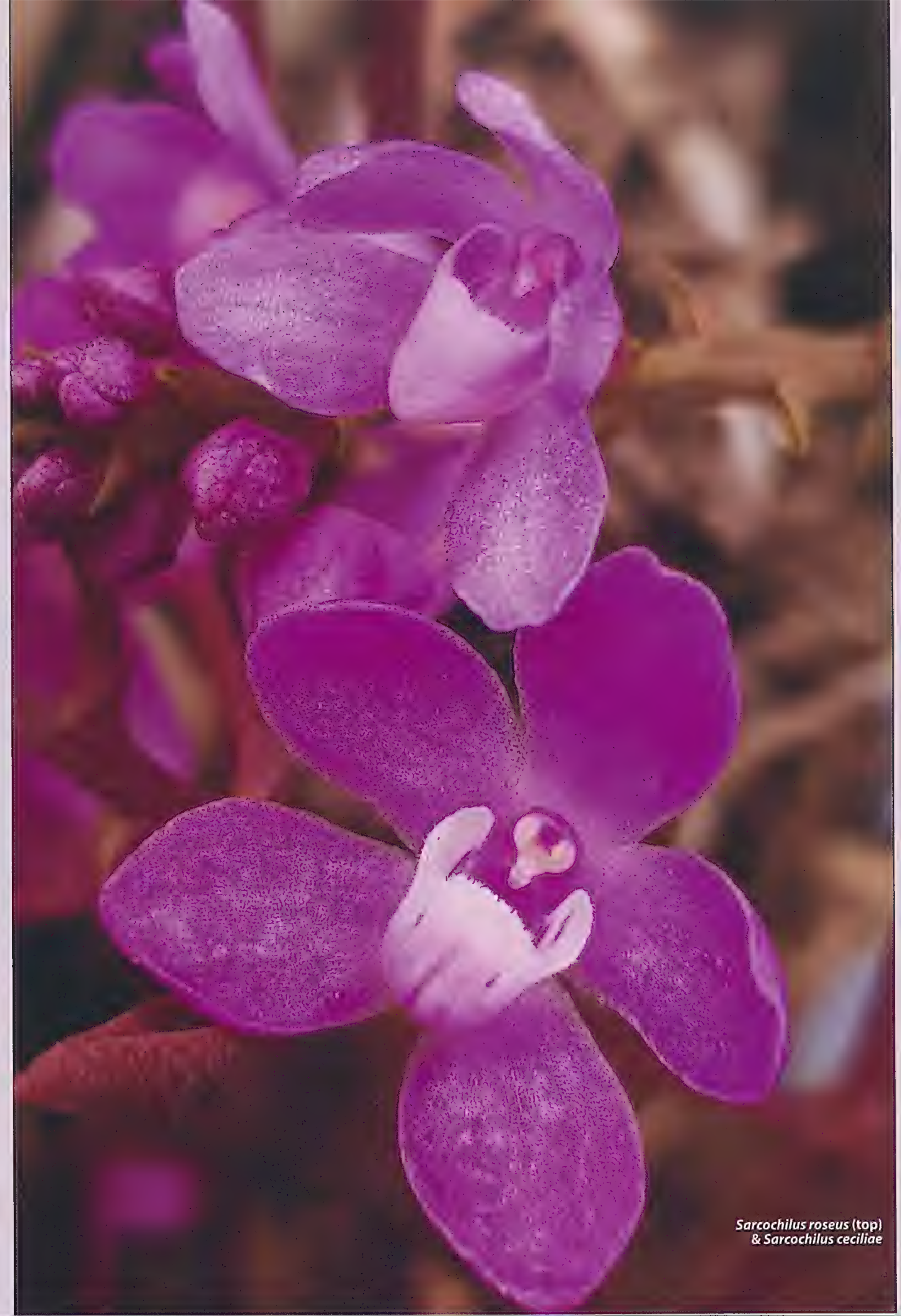
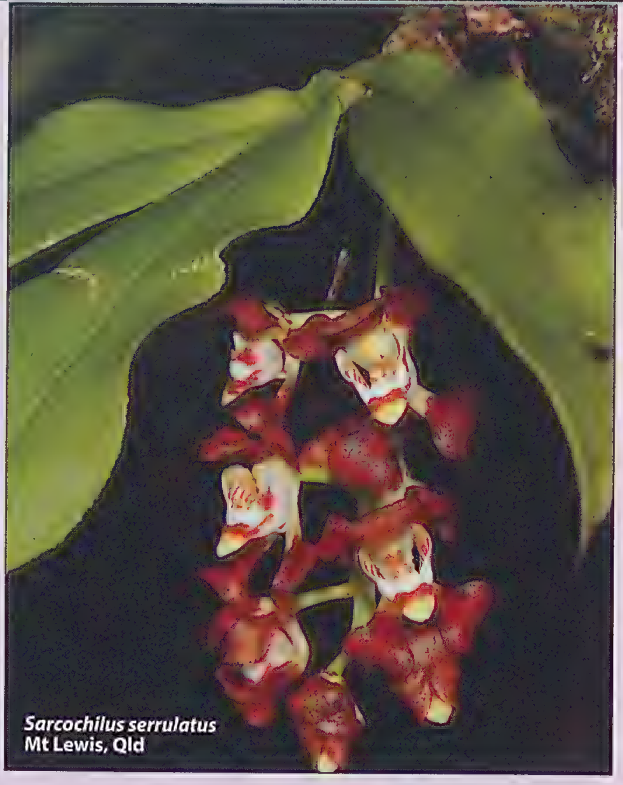


Sarcochilus roseus (top)
& *Sarcochilus ceciliae*

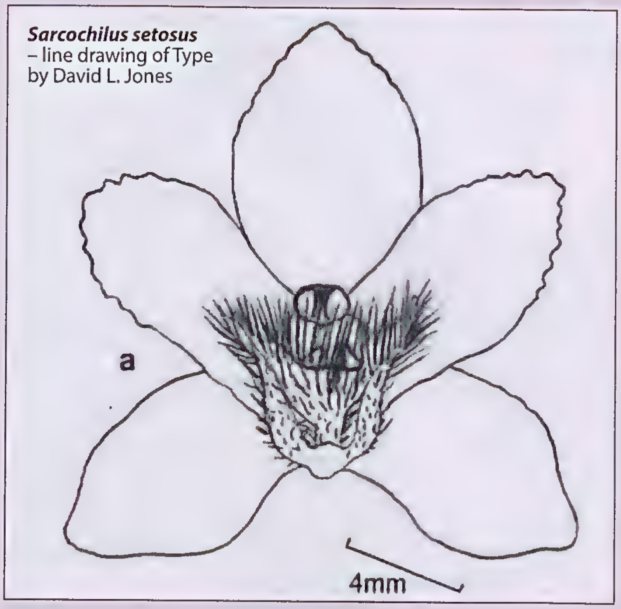
▶ *Sarcochilus serrulatus* D.L.Jones

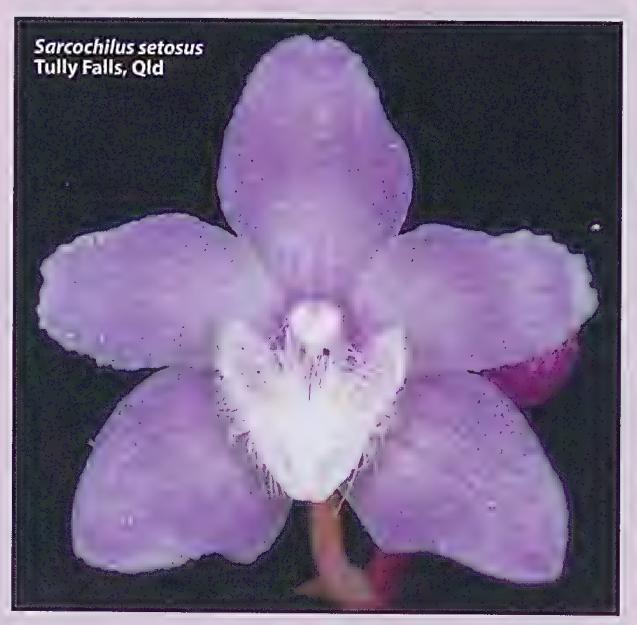
In his original 1969 opus, Dockrill had this species incorrectly interpreted as *Sarcochilus olivaceus* var. *borealis* (now correctly *Sarcochilus parviflorus*). This highland epiphytic rainforest species was formally described by David Jones in 1972 and he is still involved with Australian native orchids, their taxonomy and classification today, almost 50 years later. The specific name relates to the minutely serrated toothed margins to the leaves. Up to ten stunning 16 mm tall flowers vary from brick-red to a reddish copper brown, and a white labellum with yellow and brown bands and markings. It is a highly localised endemic to north-eastern Queensland distributed in pockets of the Atherton Tableland, north to Mount Lewis and the Mount Windsor Tableland. Flowering August to October.


Sarcochilus serrulatus
Mt Lewis, Qld

▼◢ *Sarcochilus setosus* D.L.Jones, M.A.Clem. & D.P.Banks

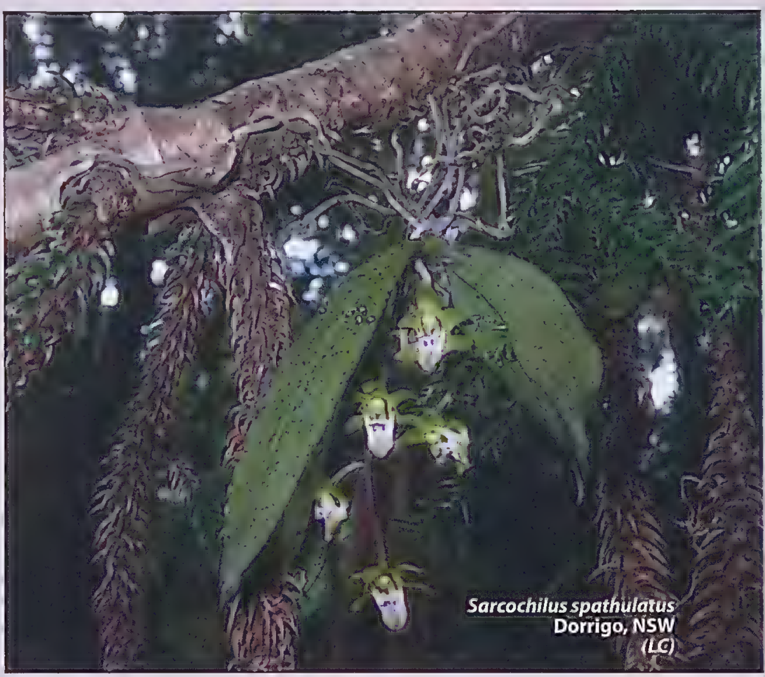
A recently described (2018) north-east Queensland species that is a member of the *Sarcochilus ceciliae* complex. This new species was discovered by David Banks and Michael Harrison on 19th September 2009, growing on granite. Together, they had been looking for *Sarcochilus roseus*, in one of the locations mentioned by Steve Clemesha in his 1969 description and discussion of this species. As the plants were not in flower at the time, Banks and Harrison assumed they had indeed found *Sarcochilus roseus*, particularly in light of the stiffly erect plant habit and unspotted leaves. The following day they took local naturalist James Walker to the site and more plants of this lithophyte were located. All noted the unusual number of aerial plantlets on the previous season's spent inflorescences, a feature not mentioned in Clemesha's original descriptions in 1967 (as *Sarcochilus ceciliae* subsp. *roseus*) and 1969 (as *Sarcochilus roseus*). When this species was first observed in bloom, it was clear that this was not *Sarcochilus roseus*, but something new. I then contacted Steve Clemesha and sent him images of the flowers. He agreed that it was a distinctive *Sarcochilus* that he had not seen before. Apparently Clemesha had collected plants from Tully Falls in the late 1960s, but they died without blooming, and he assumed they were *Sarcochilus roseus*, purely on the growth habit and unspotted leaves. It took over 50 years before the real status of this *Sarcochilus* was unravelled. Only a few bright pink distinctive flowers are open at once, others opening as the inflorescence extends, producing up to 20 flowers sporadically over a short period. The shortly crenulate/dentate distal margins of the petals are also noteworthy. Each flower lasts 5-7 days. The labellum is white, densely covered with long white needle-like hairs. Aerial growths often form at the end of the inflorescence after blooming, but initiating whilst the distal flowers are still fresh. Flowers December to March.

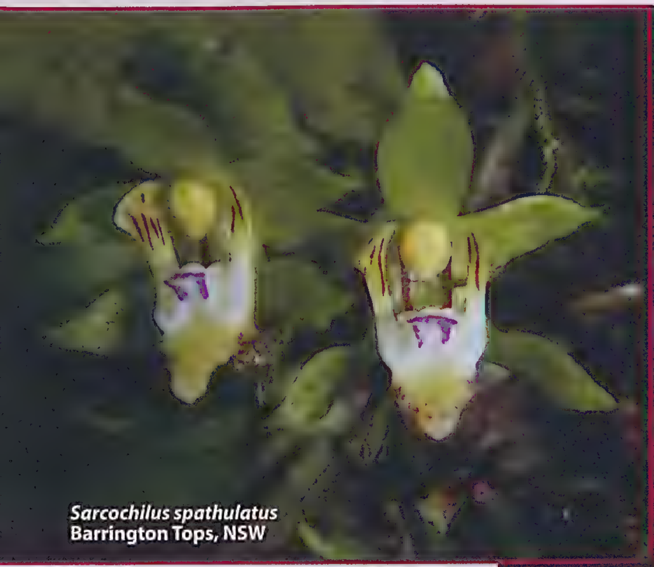

Sarcochilus setosus
– line drawing of Type
by David L. Jones

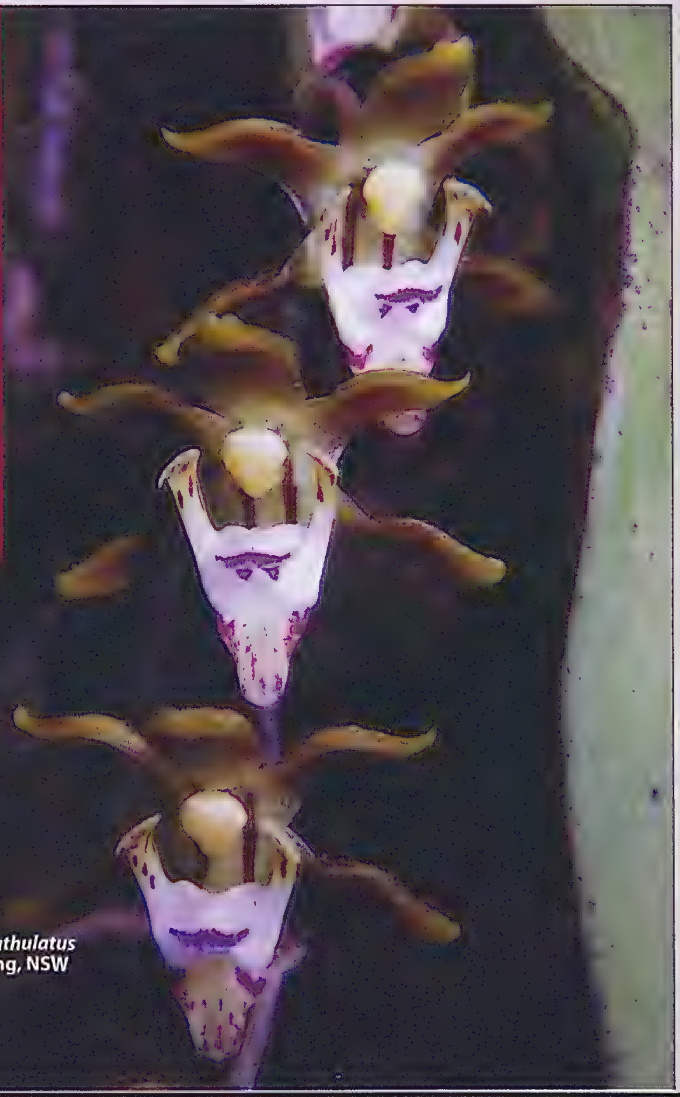

Sarcochilus setosus
Tully Falls, Qld

▼ ◢ ▶ *Sarcochilus spathulatus*
R.S.Rogers

This distinctive epiphytic species has thin-textured but leathery leaves that are often covered with numerous purple spots. It is highly variable in flower colour, ranging from apple green, greenish brown, dark brown, tan or green, rarely yellowish. From one to five blooms is common, yet I've seen one robust plant that had 9 flowers on the inflorescence. It is widespread but generally uncommon, however relatively abundant in suitable habitats. It often grows as a twig epiphyte in humid windy areas on ridgetops and the fringes of rainforest or near creeks, often in association with epiphytic mosses. It does form larger plants when growing on the main trunk and branches of host trees. In Queensland, it is found from Bunya Mountains, Kenilworth to the McPherson Range, and in New South Wales from the Border Ranges to the Watagan Mountains. *Sarcochilus harriganiae* Rupp (1938) and *Parasarcochilus spathulatus* (R.S.Rogers) Dockrill (1967) are synonyms. Anthocyanin-free (albino) forms, with green and white blooms, may be classified as *Sarcochilus spathulatus* forma *viridis*. Flowering September to November.


Sarcochilus spathulatus
Dorrigo, NSW
(LC)


Sarcochilus spathulatus
Barrington Tops, NSW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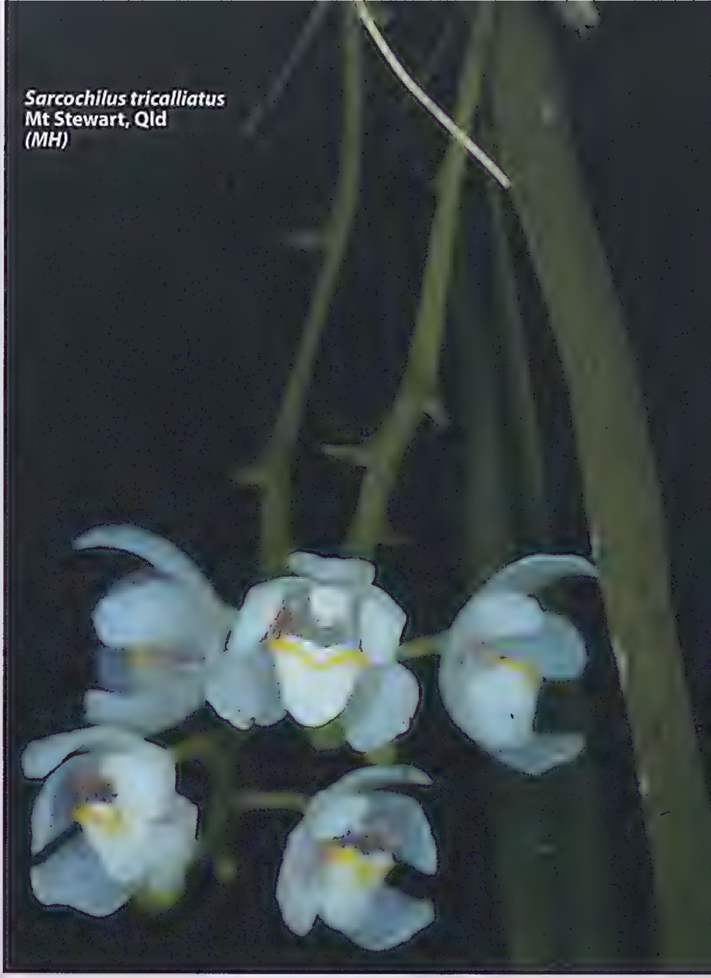
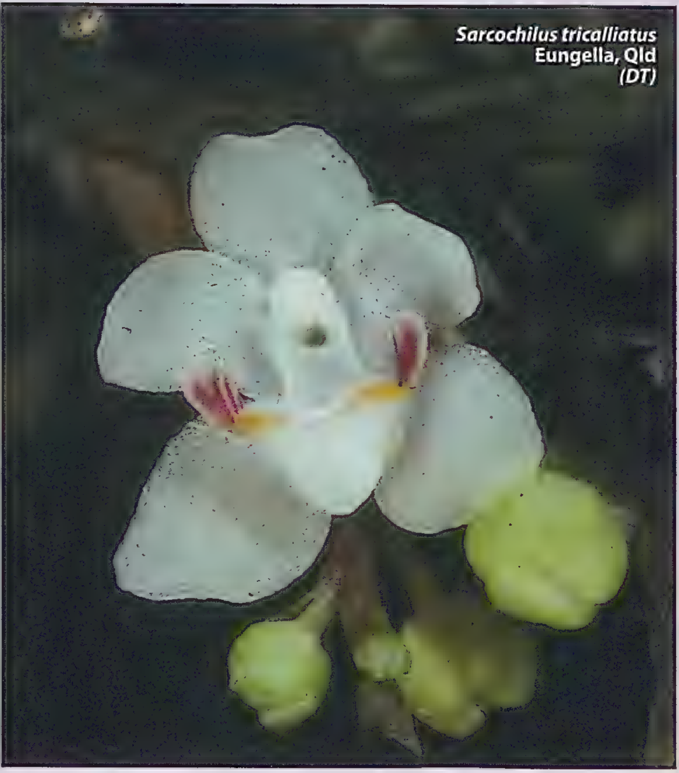
▶ ▼ *Sarcochilus tricalliatus* (Rupp) Rupp

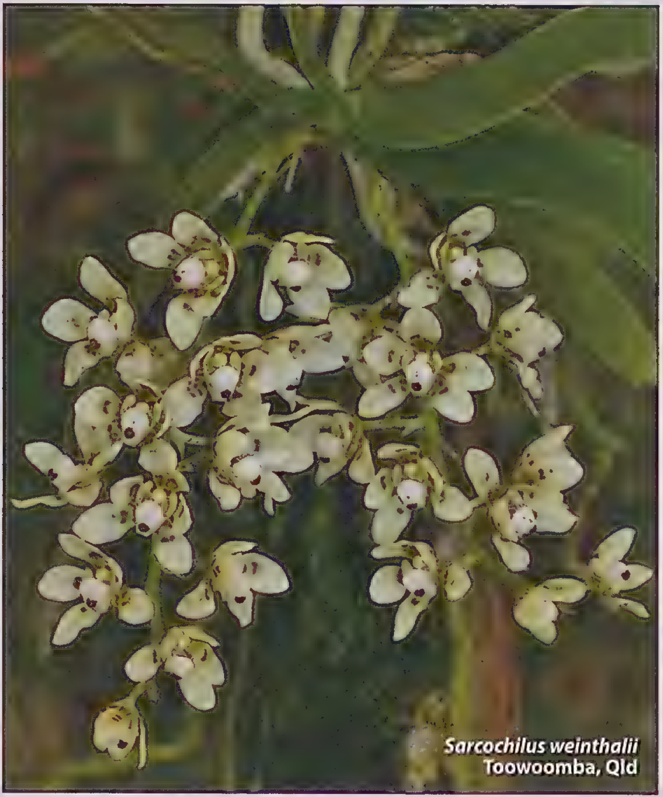
This poorly understood dry forest species (often confused with *Sarcochilus minutiflos*, simply a later name for *Sarcochilus hillii*) was first named in 1936 by H.M.R.Rupp as *Sarcochilus hillii* var. *tricalliatus* based on a plant collected in 1935 by Ken MacPherson from Mount Dryander near Proserpine in northern Queensland. The specific name relates to the three calli in the labellum. The inflorescence produces white flowers sporadically as it grows, with only one to a few flowers open at once. The labellum has internal purple stripes on the side lobes, with the midlobe marked with a yellow upper margin. *Sarcochilus tricalliatus* is very closely related to *Sarcochilus thycola* (N.Hallé) M.A.Clem., D.L.Jones & D.P.Banks (2019) from New Caledonia, that was previously incorrectly linked to *hillii* as *Sarcochilus hillii* (F.Muell.) F. Muell. var. *thycola* N.Hallé (1986). It is endemic to north-east Queensland, from the McIlwraith Range, Cooktown to Rockhampton, and inland at Forty Mile Scrub. Flowers November to January.



Sarcochilus tricalliatus
Mt Stewart, Qld
(MH)



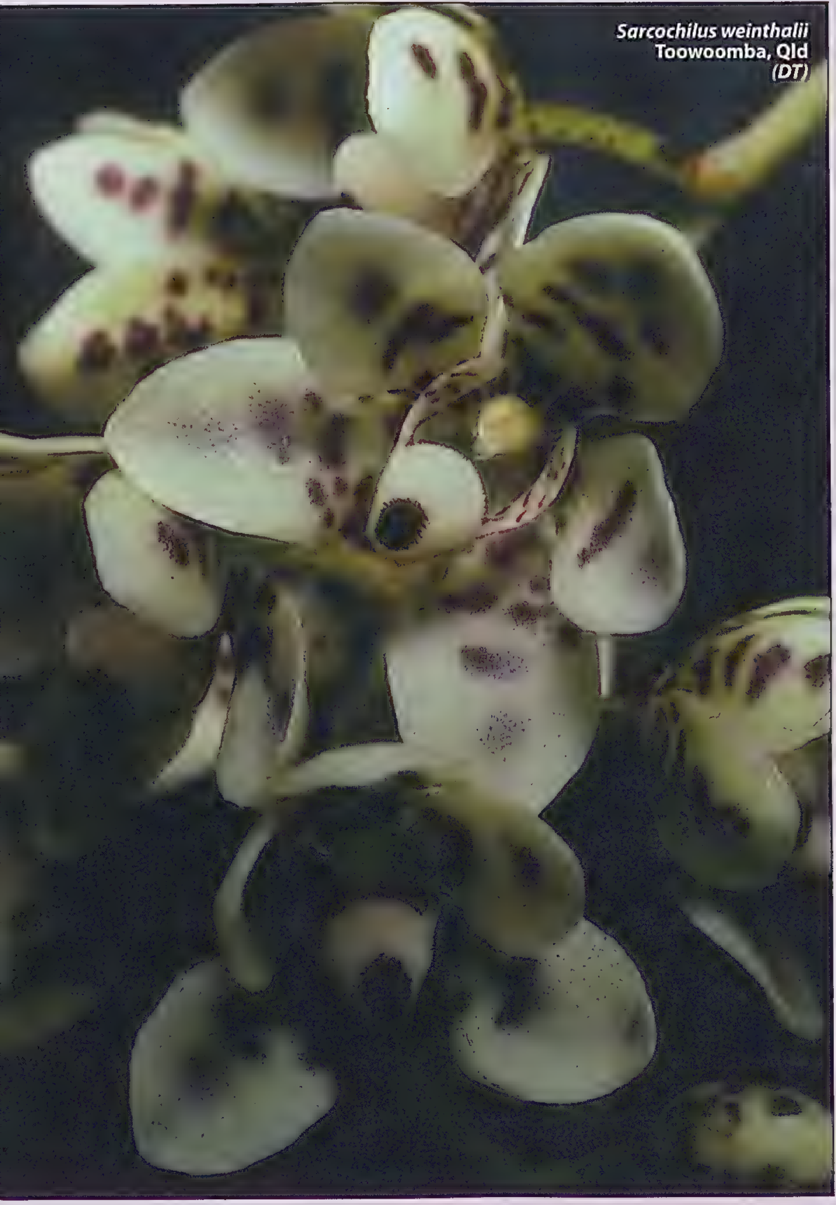
Sarcochilus tricalliatus
Eungella, Qld
(DT)



Sarcochilus weinthalii
Toowoomba, Qld

▶ *Sarcochilus weinthalii* F.M.Bailey

This species was named in 1903 based on specimens collected by F.A.Weinthal from the Main Range, Toowoomba in southern Queensland. In 1967, Alick Dockrill reclassified it as *Parasarcochilus weinthalii* (F.M.Bailey) Dockrill, however the concept of *Parasarcochilus* Dockrill was never fully embraced. *Sarcochilus weinthalii* is highly localised and generally quite rare, growing as a twig epiphyte on shrubs or main trucks of small trees in exposed yet humid mountainous areas well inland from the coast, in isolated patches of dry scrub. The leaves are leathery and yellowish-green, with the old inflorescences drying brown (not black as in *falcatus* and *niveus*). Between 3 to 16 white to greenish-cream 14 mm flowers with varying numbers and sizes of chocolate to maroon spots, short stripes and blotches, concentrated on the centre of the bloom. The labellum has a fleshy spur, with a dark maroon spot on the apex. It is distributed sporadically from the Bunya Mountains to Toowoomba region of Queensland to Urbenville, Kyogle to eastern Dorrigo in New South Wales. Anthocyanin-free (albino) forms, with white blooms and greenish yellow spotting, may be classified as *Sarcochilus weinthalii* forma *longmanii*, as the name *Sarcochilus longmanii* F.M.Bailey (1909) was used to describe this colour form at specific rank. It is very closely related to the highly variable *Sarcochilus koghiensis* Schltr. from New Caledonia. Flowers September to October.



Sarcochilus weinthalii
Toowoomba, Qld
(DT)

So are they all *Sarcochilus*?

Ongoing DNA studies will hopefully clarify this in the future. The fact is most people just refer to the various taxa as *Sarcochilus* as they were the names they were introduced with. Within these 20 Australian species, there is so much variation in plant habit, flower form and labellum shape, structure and size. As noted earlier, *Sarcochilus falcatus* is the Type species, so becomes the starting point. At present there is not a clearly agreed definition on what designates a *Sarcochilus*. Do we keep the status quo, or should the concept of *Sarcochilus* be narrowed or instead broadened to include smaller genera such as *Drymoanthus*, *Mobilabium*, *Peristeranthus*, *Plectorrhiza*, *Rhinerrhiza* and *Saccolabiopsis*? Recently (2019) we saw *Papillilabium* and *Schistotylus* absorbed into *Plectorrhiza*. With *Papillilabium beckleri* becoming *Plectorrhiza beckleri* (F.Muell. ex Benth.) M.A.Clem., D.L.Jones & D.P.Banks and *Schistotylus purpuratus* becoming *Plectorrhiza purpurata* (Rupp) M.A.M.Renner. We at least know that these various orchid genera (many being monotypic) are very closely related to *Sarcochilus* as many have been readily hybridised between each other artificially in cultivation to produce fertile offspring and flowering bigeneric and trigeneric combinations.

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Artificial Grouping of *Sarcochilus* Species in unofficial Sections (DPB – 2020)

Sarcochilus	*Sarcochilus* Section X	*Sarcochilus* Section Y	*Sarcochilus* Section Z
falcatus	***ceciliae***	***parviflorus***	***hirticalcar***
niveus	***eriochilus***	***olivaceus***	
weinthalii	***roseus***	***serrulatus***	
koghiensis	***rarus***	***dilatatus***	
fitzgeraldii	***setosus***	***australis***	
hartmannii	***hillii***	***spathulatus***	
aequalis	***loganii***		
	tricalliatus		
	thycola		
Flowers mostly widely expanded	Flowers cuppy to widely expanded	Flowers widely expanded	Flowers widely expanded
Labellum fleshy, often small in comparison with tepals, without hairs	Labellum thin textured to fleshy, small in comparison with tepals, with or without hairs	Labellum fleshy, can be prominent in some species, without hairs. # with hollow internally glabrous chin	Labellum fleshy, hollow chin with internal hairs
Half to all flowers out together	Sequentially flowered in small groups	Half to all flowers out together, sometimes sequential	Sequentially flowered individually or in small groups on robust plants
Predominantly white/cream flowers	Predominantly deep pink to white small flowers	Predominantly green to yellowish to brick red-brown & brown flowers	Predominantly greenish-yellow flowers
Petals and sepals similar size, broad rounded tepals	Petals and sepals similar size, broad rounded sepals	Sepals larger than petals, narrow tepals	Sepals larger than petals, wide rounded tepals
Lithophytes or epiphytes	Lithophytes or epiphytes (very often twig epiphytes)	Predominantly twig epiphytes	Epiphytes (often twig epiphytes)
Glossy fleshy (lithophytes) to leathery (epiphytes) green leaves	Very narrow, fleshy, channelled, dull green leaves, stained with purplish blotches or spots	Thin-textured leathery leaves, bright to dull green, sometimes strained or spotted purple/maroon	Green thin-textured leaves

Conclusion & Acknowledgements

I have been fortunate to have seen almost all of the Australian *Sarcochilus* species in the wild. There have been many individuals who have helped me on my journey into *Sarcochilus* over the past four decades. Ironically, my first article *"Knowing and Growing Australian Sarcochilus"* was published in *The Orchadian* back in 1980. I also made a number of experimental *Sarcochilus* hybrids in the 1980s and 1990s, some of which are still in cultivation, but most have been surpassed for quality. I wish to thank the following people for companionship and discussions that have enhanced my knowledge into these native orchids. Many have accompanied me in the bush and have readily shared information, experiences, opinions, locations and photographs.

These include David Butler, Ray Clement, Mark Clements, the late Steve Clemesha, the late George Colthup, Lachlan Copeland, the late Murray Corrigan, Bill Dobson, Ted Gregory, Michael Harrison, David Jones, John Riley, John Roberts, Dennis Sinclair, Darryl Smedley, Phil Spence, Alan Stephenson, the late Wal Upton, James Walker and Gerry Walsh. Images used in this paper taken by the author, or the following photographers; Steve Clemesha *(SC)*, Lachlan Copeland *(LC)*, Wayne Harris *(WH)*, Michael Harrison *(MH)*, John Roberts *(JR)* and David Titmuss *(DT)*.

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Notes on Australasian Orchids 6: The *Dockrillia striolata* complex

by David L. Jones and Mark A. Clements

Abstract

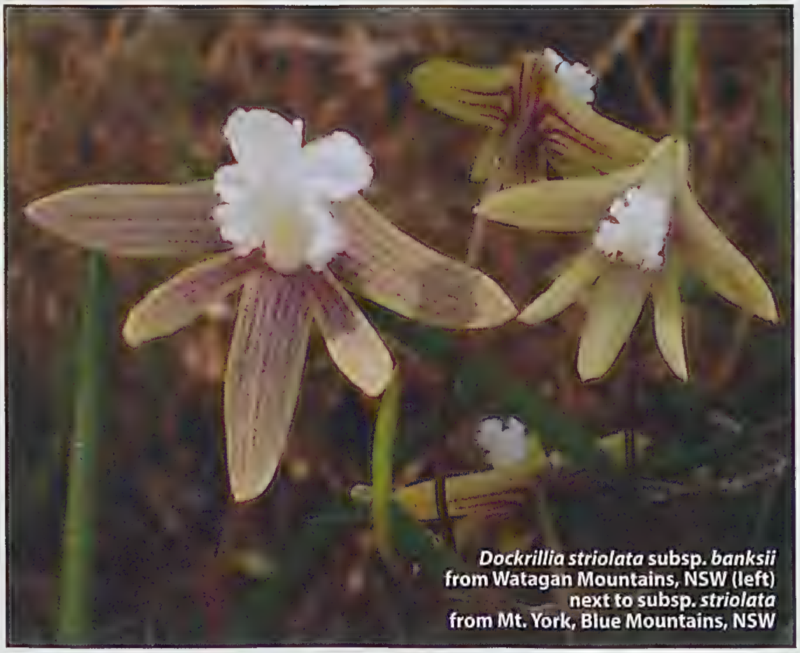
The *Dockrillia striolata* complex is re-examined on the basis of molecular data and 4 subspecies are proposed reflective of their morphology and distribution: *Dockrillia striolata* (Rchb.f.) Rauschert subsp. *striolata*, subsp. *banksii* (D.L.Jones et M.A.Clem.) D.L.Jones et M.A.Clem., subsp. *milliganii* (F.Muell.) D.L.Jones et M.A.Clem. and subsp. *chrysantha* D.L.Jones.

Introduction

A detailed multigene molecular analysis of Dendrobieae (unpublished) revealed a dichotomy in *Dockrillia striolata* (Rchb.f.) Rauschert which also involved *Dockrillia banksii* D.L.Jones & M.A.Clem in one branch of the tree. In essence, representative material of *Dockrillia striolata sens. str.* aligns with material of *Dockrillia banksii* in one branch of the tree, whereas sequences derived from material of *Dockrillia striolata* collected at Genoa Peak in Victoria align with sequences from material of *Dockrillia striolata* subsp. *chrysantha* from Bicheno in Tasmania.

A study of herbarium material including floral dissection cards of collections of *Dockrillia striolata* and *Dockrillia banksii* from across their range reveals a similar pattern where plants from the Blue Mountains, specifically near Newnes, are most similar to those from the Watagan Mts near Newcastle. In comparison, plants from Genoa Peak near Mallacoota in the very south east of the continent have narrower segments including the labellum and notable striping on the back of the tepals most resembling plants from Flinders Island from where the Type of *Dendrobium milliganii* F.Muell. was collected. These plants are distinct from those found on the Tasmanian mainland where the flowers have butter yellow tepals, lacking stripes and strongly crenulate margins of the labellum.

The status of *Dockrillia banksii* has been the subject of debate based on the gross similarity to collections of *Dockrillia striolata* particularly from the northern parts of its distribution (such as Gardens of Stone National Park and Wollemi National Park in the Blue Mountains). The northern taxa have a broad crenulate labellum (broader than southern populations) but *Dockrillia banksii* is distinguished by thinner more elongate random habit of the leaves, larger flowers with darker tepals (often mushroom pink to light brown). As a consequence of this new molecular data the following arrangement is proposed to facilitate the recognition of the close relationships of these taxa.



Dockrillia striolata subsp. ***banksii*** from Watagan Mountains, NSW (left) next to subsp. ***striolata*** from Mt. York, Blue Mountains, NSW

TAXONOMY

Dockrillia striolata (Rchb.f.) Rauschert subsp. ***striolata***, *Feddes Repert.* 94(7-8): 447 (1983).

Basionym: *Dendrobium striolatum* Rchb.f., Hamburger Garten-Blumenzeitung 13: 313 (1857). Type: cult. *s. loc, Schiller s.n.* (holo W!).

Dockrillia striolata (Rchb.f.) Rauschert subsp. ***banksii*** (D.L.Jones & M.A.Clem.) D.L.Jones & M.A.Clem., ***comb. et stat. nov.***

Basionym: *Dockrillia banksii* D.L.Jones et M.A.Clem., *Austral. Orch. Rev.* 70(5): 17-21, f., t. (Oct. 2005).

Dockrillia striolata (Rchb.f.) Rauschert subsp. ***chrysantha*** D.L.Jones, *Austral. Orch. Res.* 3: 9, t. 28 (1998).

Dockrillia striolata (Rchb.f.) Rauschert subsp. ***milliganii*** (F.Muell.) D.L.Jones & M.A.Clem., ***comb. et stat. nov.***

Basionym: *Dendrobium milliganii* F.Muell., *Fragm.* 1: 88, t. 6 (1859). ■

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9th New Zealand Orchid Expo 2019

Text and photos by David P. Banks

The 9th New Zealand National Orchid Expo 2019 was held 19-22 September at the Fly Palmy Arena in Pascal Street, Palmerston North, on the North Island of New Zealand. The Expo is hosted by the Orchid Council of New Zealand with the organisation and administration delegated to a committee drawn from member Orchid Societies in the vicinity. Traditionally these national shows have been held every 3 or 5 years rotating at various locations around New Zealand. A feature of these national shows is the elaborate displays designed and presented by the majority of the participating societies.

We arrived in Auckland a few days before the Expo. We hired a brand new Holden Acadia that we ended up doing well over 1000 km in just over a week. So we travelled in much comfort and style with all the modern safety features plus plenty of room for our luggage and the four of us.

We stayed a couple of nights at Waitomo Caves house, some say it's haunted! Yet instead of visiting the iconic Waitomo Caves, we were recommended to take the "Spellbound" tour. This was a personalised tour where we were driven by 4WD to a scenic country farm to see two very different limestone cave systems. We saw thousands of glow worms as we glided gently downstream in an inflatable raft. It was an amazing experience I could not recommend highly enough. www.glowworm.co.nz

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The Otorohanga Kiwi House never fails to disappoint. It shelters and successfully breeds several species of the rare native Kiwi, as well as many other birds endemic to New Zealand.

Biggest Kiwi in NZ at Otorohanga

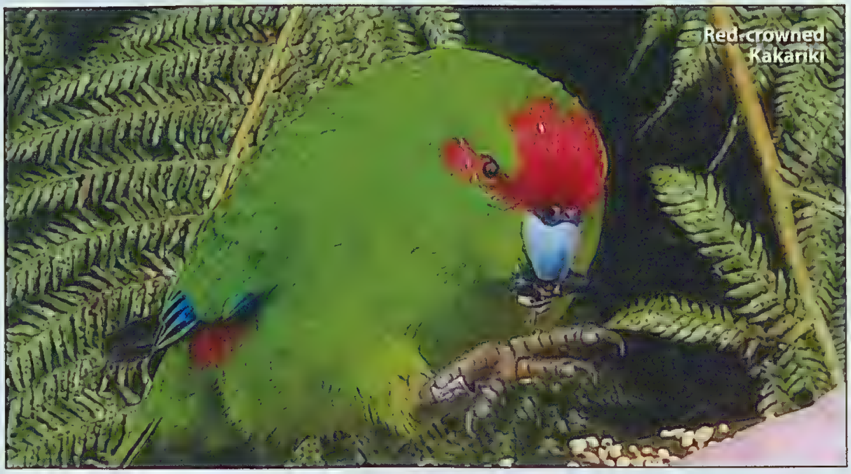
Mount Ngauruhoe

Mount Ruapehu with iconic Chateau Tongariro Hotel

The central North Island is dominated by the volcanic Tongariro National Park. In summer there are many terrestrial orchid species to be seen on the lower flanks of Mt. Ruapehu. The snowcapped mountains are simply majestic and have featured in the *Lord of the Rings* movies. To see these active volcanoes on a sunny, sky blue day, after a dumping of snow the night before is an unforgettable sight. It's one of my favourite places on the planet.

We visited and paid our respects at the memorial for the 1953 Tangiwai train disaster. It occurred at 10:21pm on 24 December 1953 when the Whangaehu River bridge collapsed beneath the Wellington-to-Auckland express passenger train No. 626 at Tangiwai, in the central North Island of New Zealand. The locomotive and first six carriages, with 285 passengers and crew on board, derailed into the river, killing 151 people. The subsequent Board of Inquiry found that the accident was caused by the collapse of the tephra dam holding back nearby Mount Ruapehu's crater lake. This created a large lahar in the Whangaehu River, which destroyed one of the bridge piers at Tangiwai only minutes before the train reached the bridge. The disaster on Christmas Eve 1953 remains New Zealand's worst rail accident. The memorial is maintained by local Lions Club groups.

Whangaehu River – site of 1953 NZ Rail Disaster

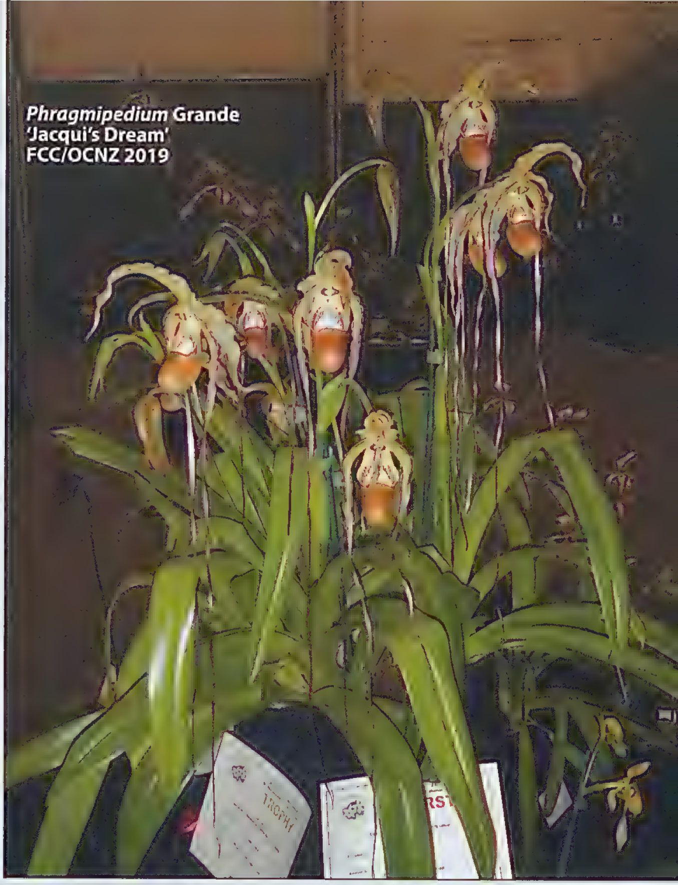


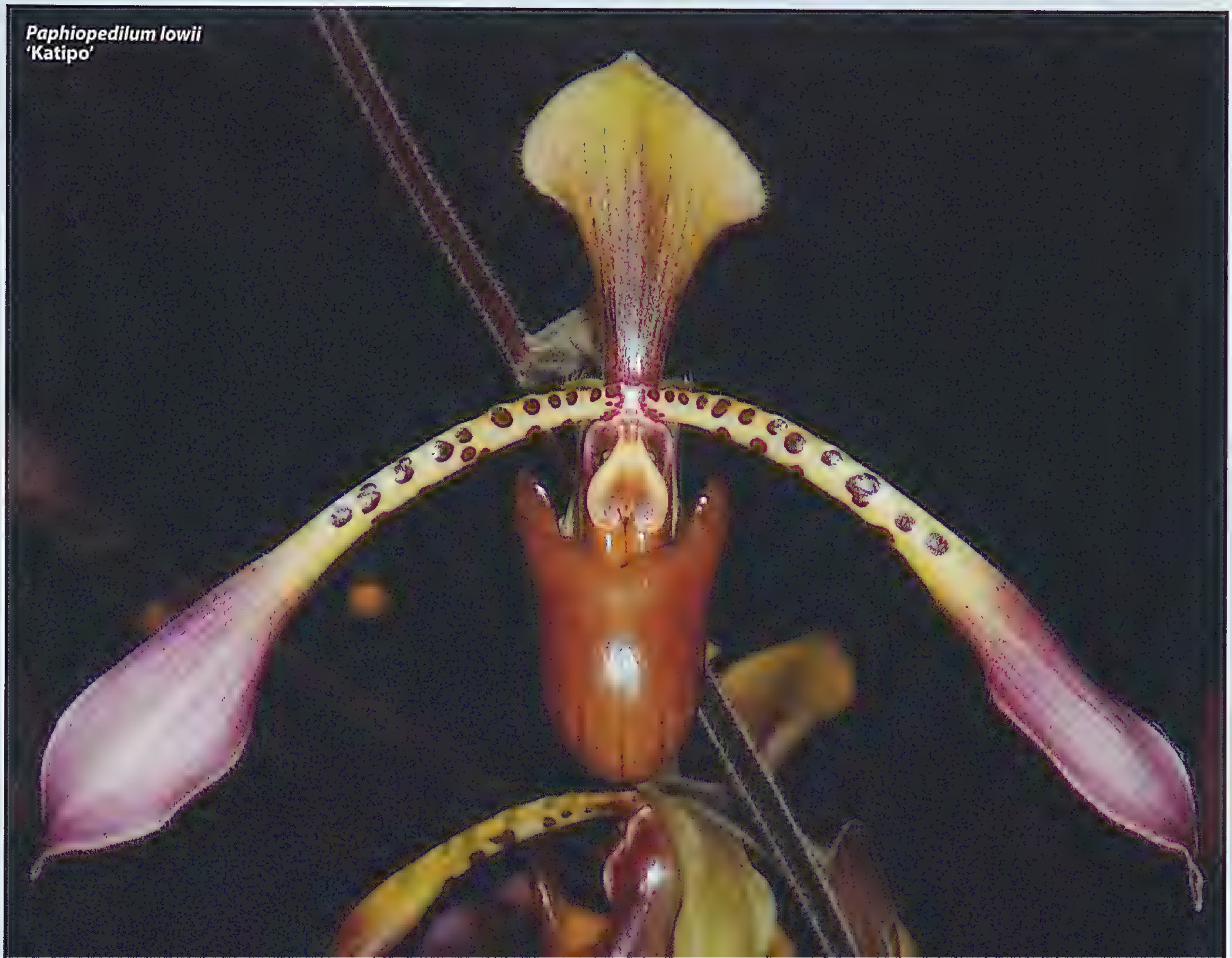
Red-crowned Kakariki

Now to the orchid show! We settled into our very comfy accommodation at BKs Motor Lodge and attended the evening Preview and Opening Ceremony. The orchids and exhibits had been judged that day. Much of the organisation for this Expo was facilitated by an able committee led by Palmerston North local Graham Jackson, who I have had the pleasure of knowing for over two decades. The judging team has many participants from across both islands. Margaret Lomas (chair) was assisted by a core team including Joy Hopson, Chris Hubbert, Graham Jackson, Gill Lyster, Glenys MacRae & Bryan Sutherland.

There were 27 displays in total from orchid societies, traders and individuals ranging from table-top to large displays. Whilst looking at the displays, keen photographer Ahmed Fayaz introduced himself to me. Ahmed is the author of the comprehensive opus *Encyclopaedia of Tropical Plants*, with over 3000 species of plants described and illustrated, many of which are orchids.

Grand Champion of the Show was a plant grown by Thomas Petrie, which was exhibited in Chris Whitby's display, labelled as *Phragmipedium caudatum* 'Jacqui's Dream'. Thomas Petrie, grower of the Grand Champion orchid, is only 33 and has been growing orchids for 15 years, having trained at Wellington Botanic Gardens. It is the same plant that was voted the 2018 NZ Orchid of the Year and is on the cover of *Orchids 2019*. Well, that name is half right. It is actually a stunning example of the primary hybrid *Phragmipedium* Grande (*caudatum* x *longifolium*).


***Phragmipedium* Grande**
'Jacqui's Dream'
FCC/OCNZ 2019


Paphiopedilum lowii
'Katipo'

This plant was awarded a worthy First Class Certificate. I would suggest that the records be amended to *Phragmipedium* Grande 'Jacqui's Dream' FCC/OCNZ 2019 (it was previously awarded an AM/OCNZ in 2018).

The Reserve Champion went to an outstanding, robust and colourful example of the tropical species *Paphiopedilum lowii* 'Katipo' grown by Jason Strong. This variable species is found throughout Indonesia, Malaysia and the Philippines. Congratulations to Thomas and Jason, as it is wonderful to see some younger people growing quality orchids.

The lecture programme covered a mix of interesting and current topics with local (Lee Neale, Selwyn Hatrick) and overseas speakers including Scott Barrie (Barrita Orchids, NSW, Australia) on *Sarcochilus* hybrids and *Oncidium* breeding, Dennis Kao (Ching Hua Orchids, Taiwan) on Paphiopedilums and I spoke on *Sarcochilus* species and "Softcane *Dendrobium* Hybrids – The true Dendrobiums".

The Official Dinner was held on the Saturday night, with a fine buffet on offer, with Graham Jackson as MC. Awards were presented to successful exhibitors at the Expo. Bill Liddy was presented with an Award of Honour for outstanding service to OCNZ (Orchid Council of New Zealand), including his decade-long stewardship of the Iwitahi Native Orchid Reserve (on the Napier-Taupo Highway).

I was honoured to again be the After Dinner Speaker at a NZ Orchid Expo, and spoke about many of the orchid personalities I have met over more than two decades travelling to New Zealand. Sadly, some of those folk are no longer with us and we had a toast to "absent friends". These people included Wally Lomas, Alf Garrie, Cliff Coles, Kevin & Lyn Sherlock, David Hutchins, George Fuller, Grahame Leafberg and Clive Perry. I also reminded the audience that we don't grow orchids specifically to win prizes, but because we love them. Most importantly, grow what YOU like!

Cattleya
Cariad's Mini-Quinee
'Angel Kiss'

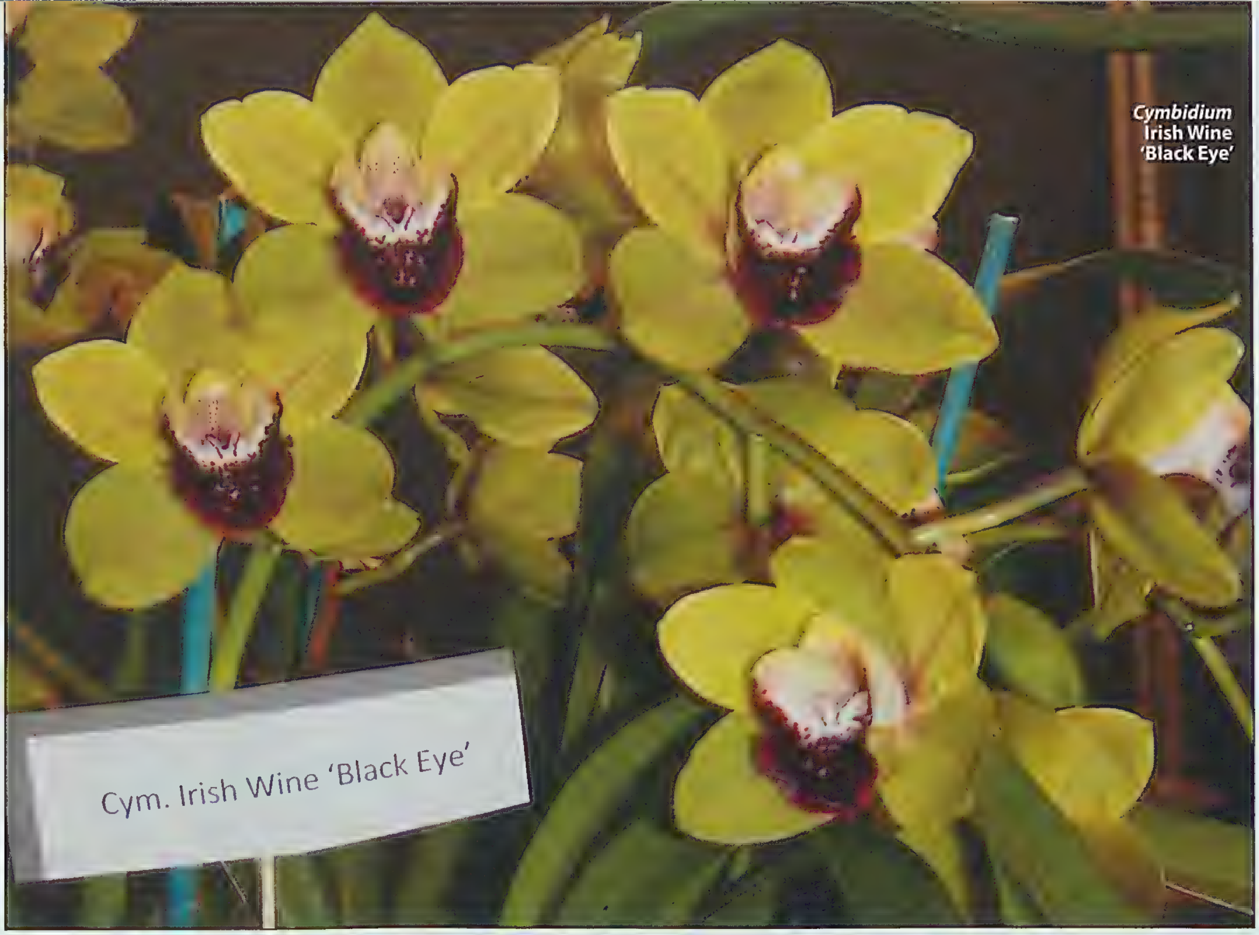
To just purely have orchids for sale at orchid shows is becoming very dated, without keeping up with the times and a changing market. There were many NZ orchid nurseries and hobbyists selling a range of fine species and hybrid orchids at the expo, from seedlings to mature plants in bloom. Some overseas vendors offered orchid flasks. However there were many "orchid-related" stalls, selling pots, fertilisers and a range of gardening hardware. There were other vendors primarily selling bromeliads, clivias, ferns, hoyas and other companion plants to orchids. They did a roaring trade as they offered interesting quality plants that you just cannot find at your local Bunnings.

The organisers also spend a lot of thought and money into advertising this event. It was regularly broadcast over the local radio station and intermittently in more regional areas. They used social media, but found the printed word paid dividends, advertising in the main NZ gardening magazines and arranging features in the local newspapers before the event. The vendors were pleased to see a slice of their stall fees going towards supplementary advertising. Too often we see organisers (in Australia) just focused on grabbing as much money they can with next to zero outlay. The organisers have an obligation to their stallholders to use some of their money to promote the event far and wide, using a wide variety of media.

New Zealand is a beautiful country with very friendly people, amazing scenery and fine orchid growers as well. Our family never tires from holidays and adventures "across the ditch"! ■

David P. Banks
Hills District Orchids
www.hillsdistrictorchids.com
Email: david@hillsdistrictorchids.com

Cattleya intermedia **'Rio'**
("orlata" type)



Cymbidium
Irish Wine
'Black Eye'

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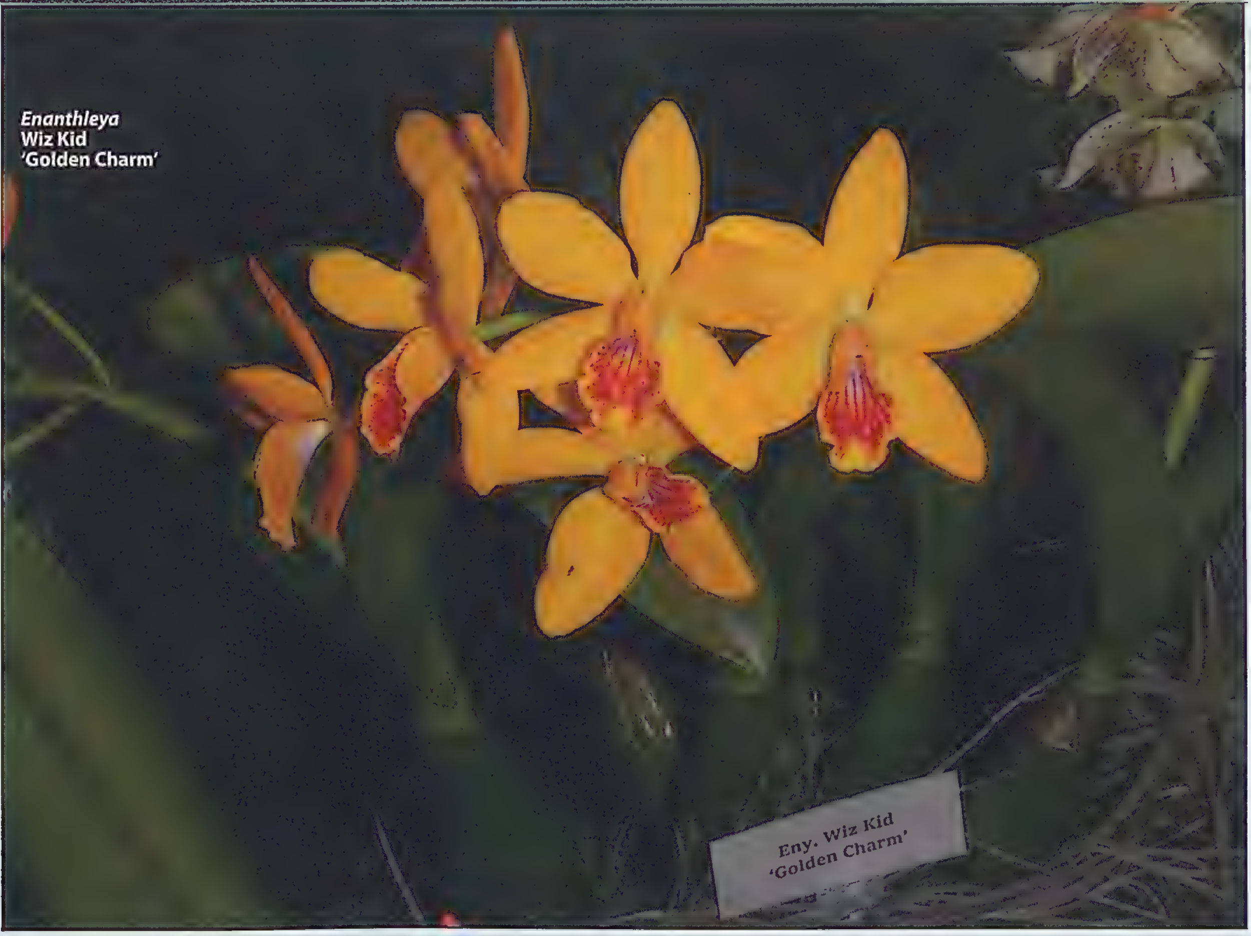
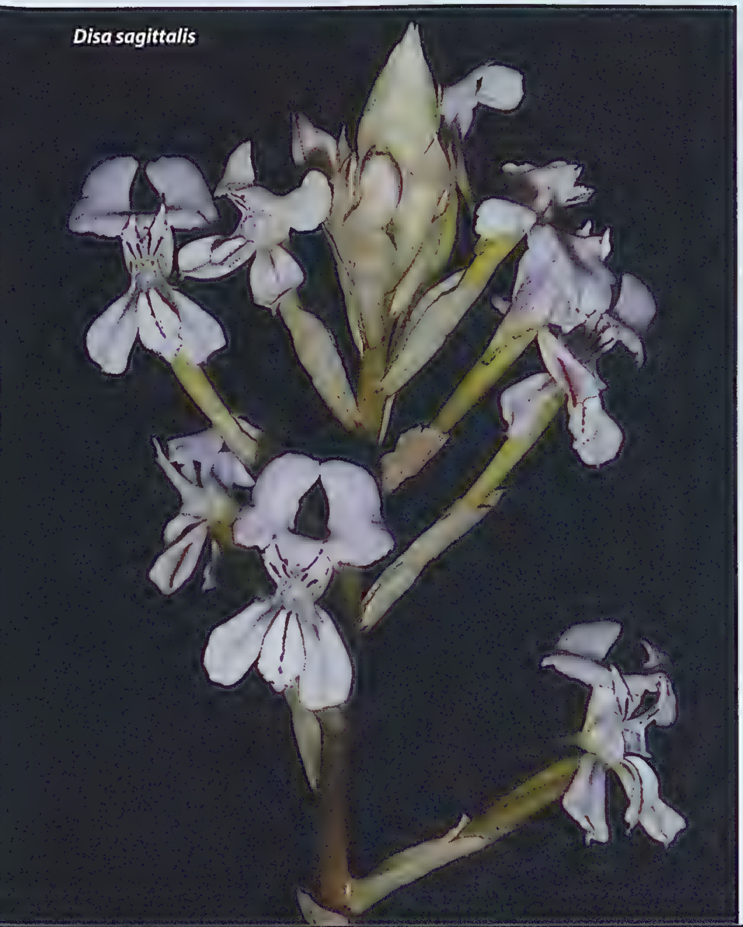
Enanthleya
Wiz Kid
'Golden Charm'



Disa sagittalis



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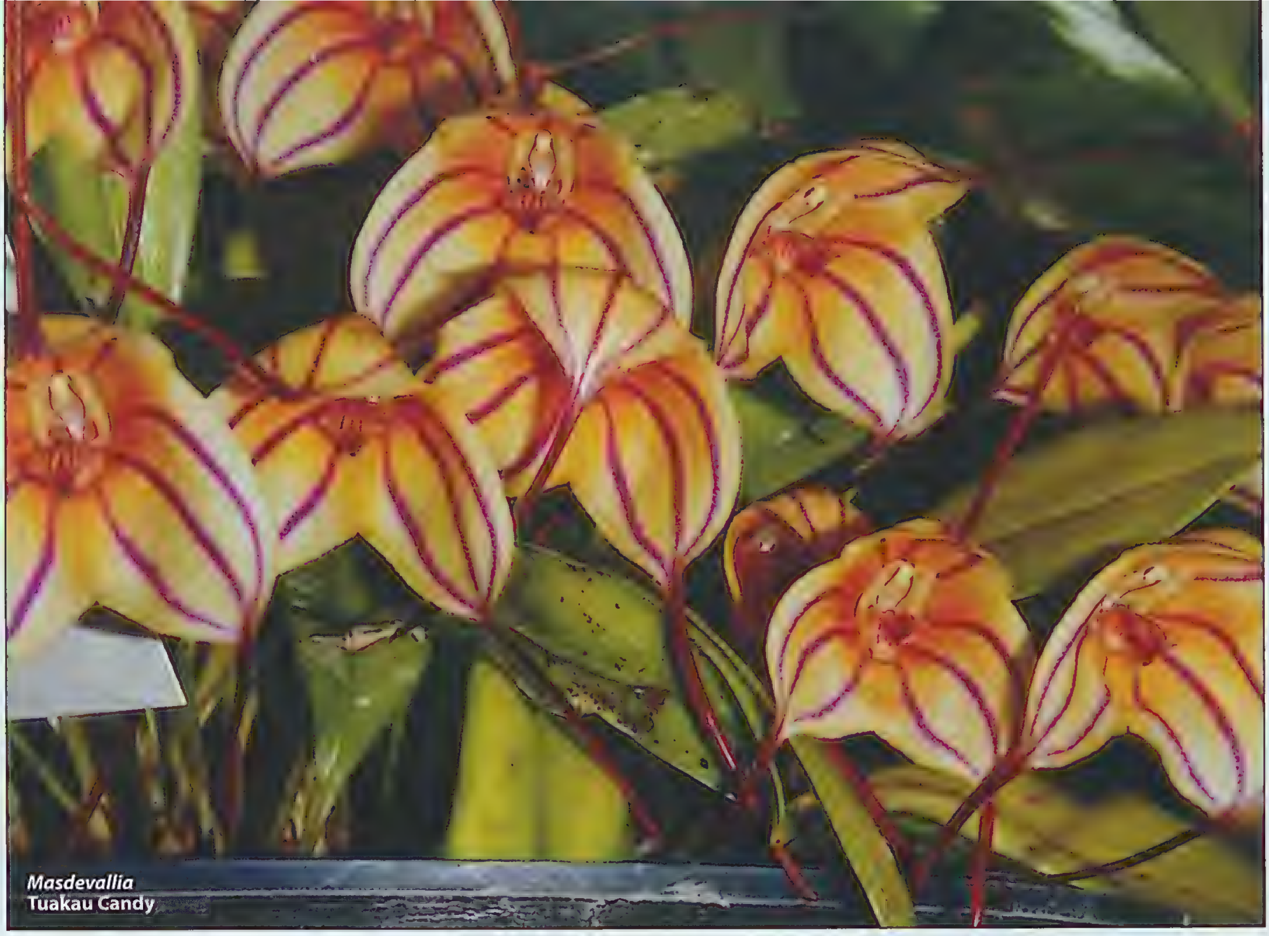
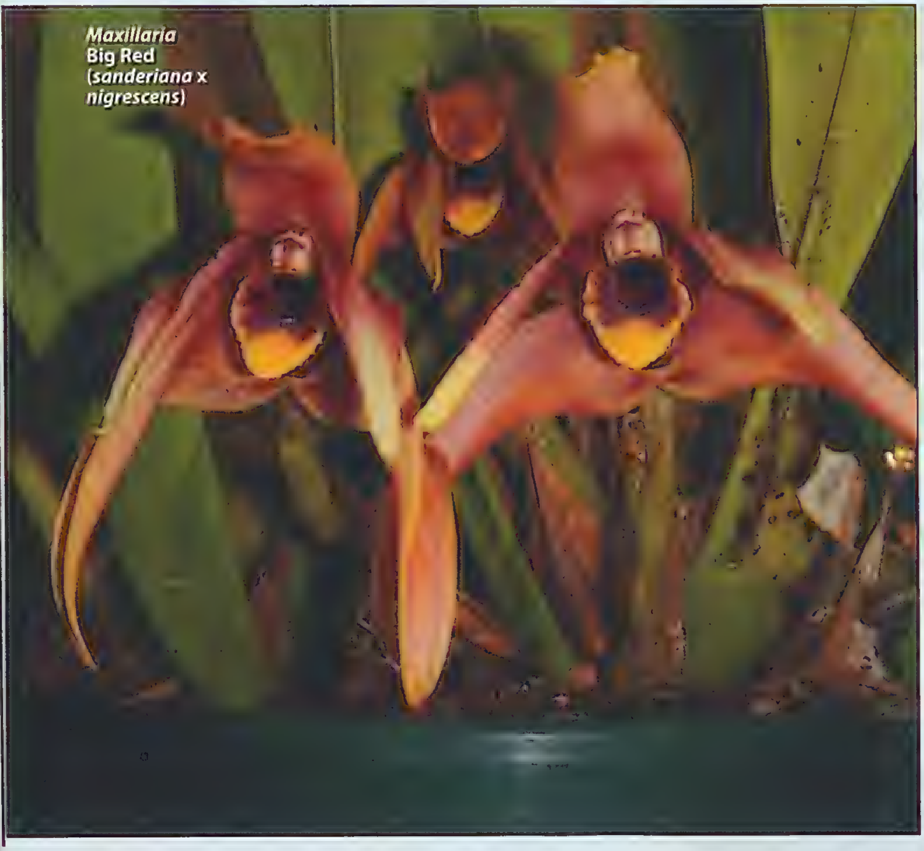


Masdevallia
Tuakau Candy



Maxillaria
Big Red
(*sanderiana* x
nigrescens)

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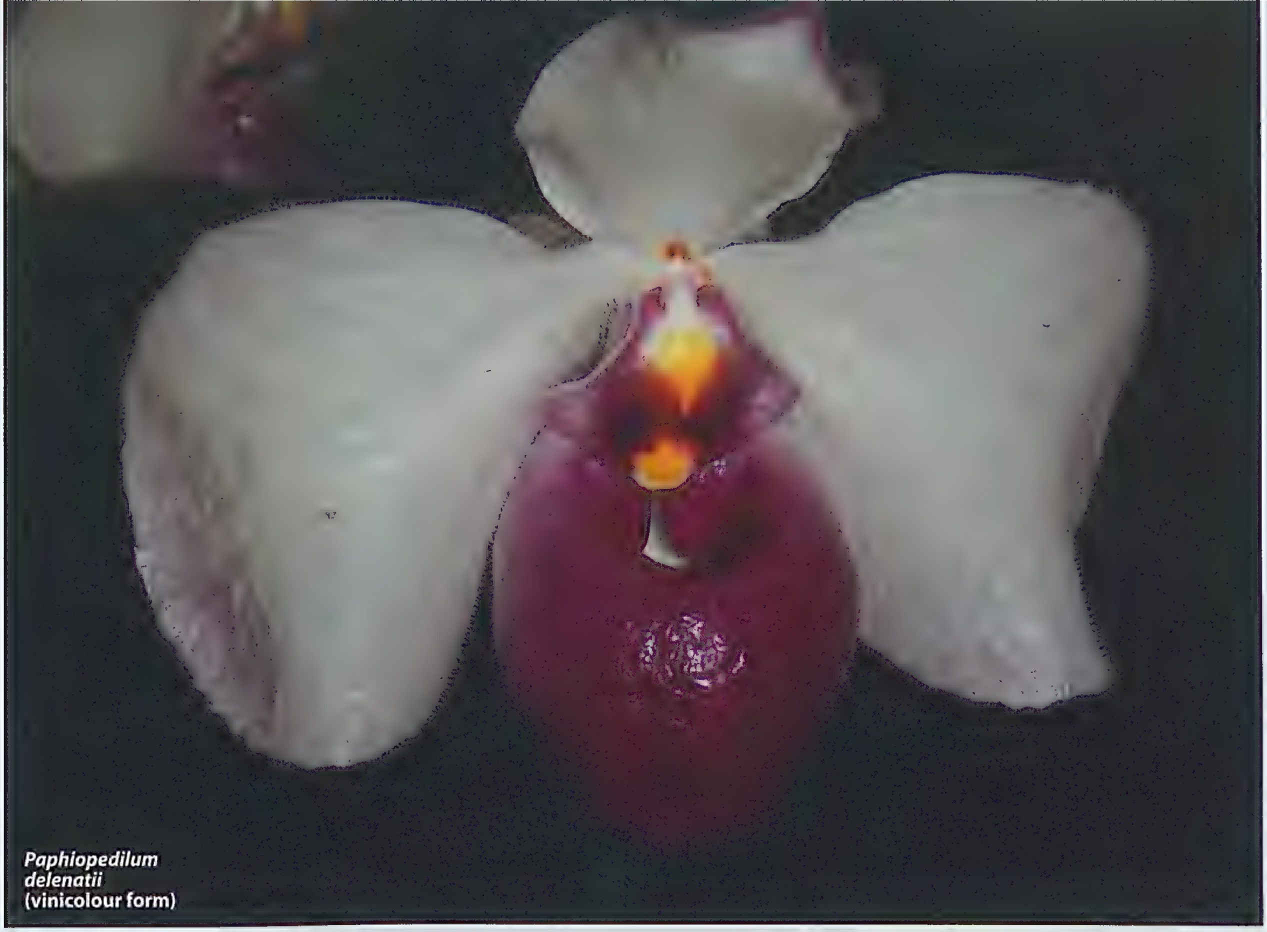
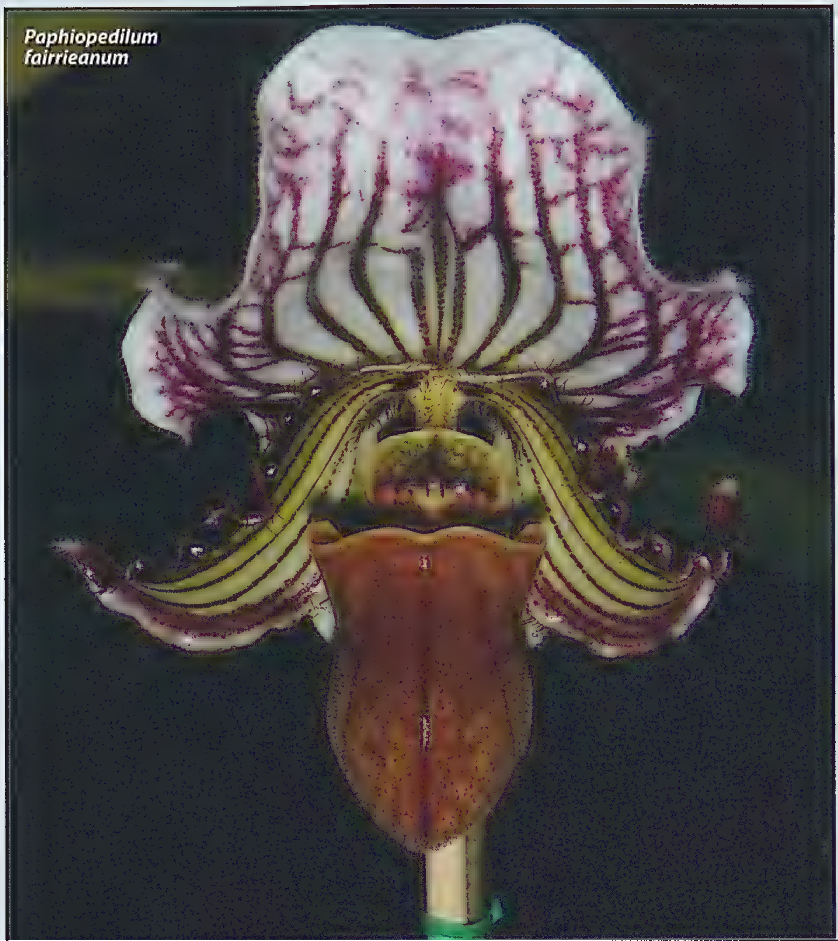


Paphiopedilum delenatii (vinicolour form)



Paphiopedilum fairrieanum

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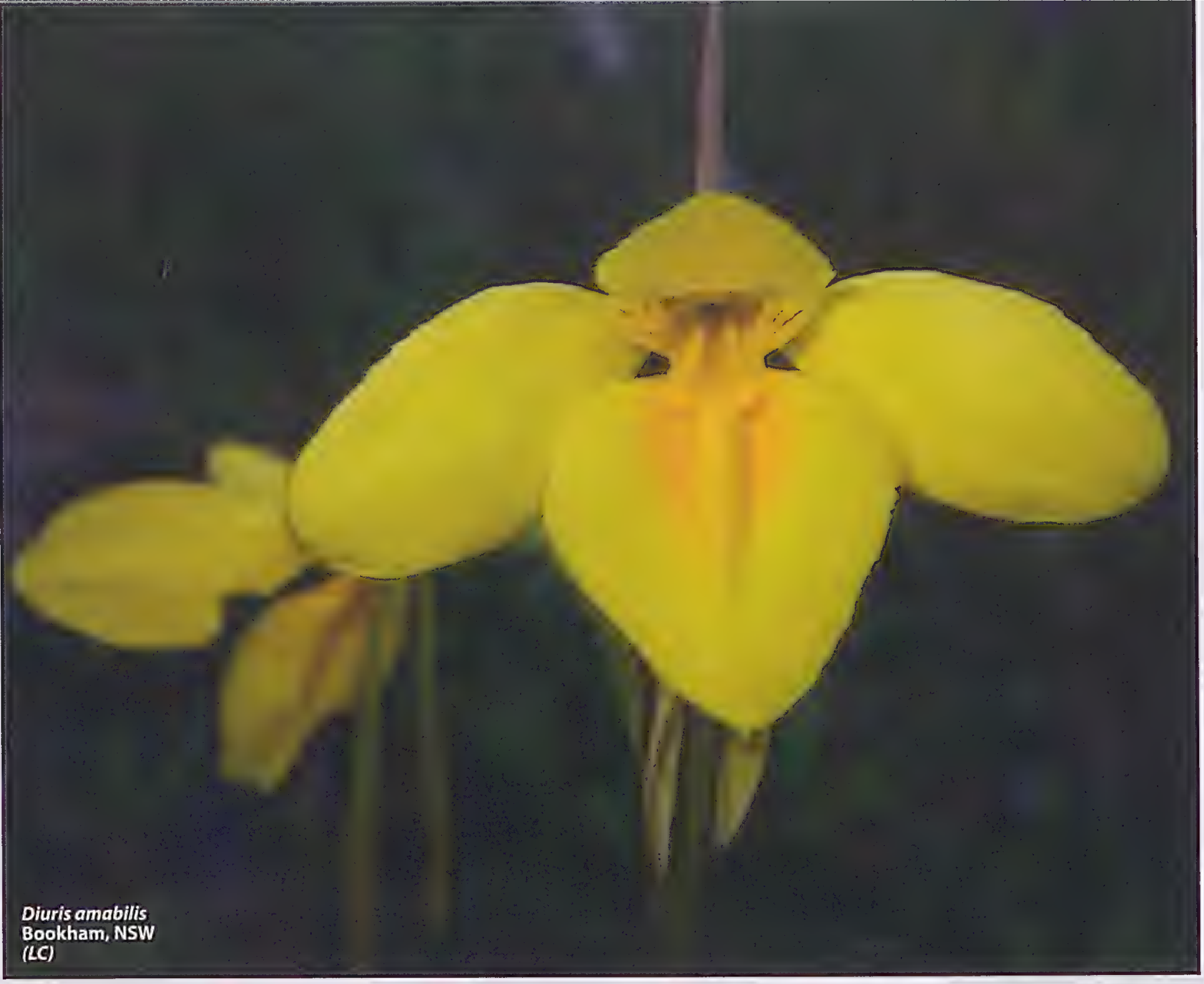

Diuris amabilis
Bookham, NSW
(LC)

Two New Species of *Diuris* R.Br. from Eastern Australia

by David L. Jones

Abstract

Two new species of *Diuris*, one widespread and common the other extremely rare and critically endangered, are here described as new. Notes are provided on their distribution, habitat, etymology, conservation status and their distinguishing features are compared with those of allied taxa.

Key Words

Orchidaceae, *Diuris amabilis*, *Diuris behrii*, *Diuris inopinus*, *Diuris chryseopsis*, new species, critically endangered, Victoria, South Australia, New South Wales, Australian Capital Territory, Australian flora.

Introduction

The recognition of *Diuris behrii* subsp. *multilineata* D.L.Jones & R.J.Bates (Jones & Bates 2017) resulted in detailed field and herbarium studies of the taxon generally identified as *Diuris behrii* in New South Wales and the ACT. These studies, which have defined *Diuris behrii* in the narrow sense with a distribution only in South Australia and Victoria, have revealed the presence of a distinct segregate taxon from New South Wales, Australian Capital Territory and Victoria which is described here as new. The opportunity is also taken to describe another rare taxon which has been known since the year 2000.

Materials and Methods

Descriptions of the new taxa were made from fresh specimens. Unless otherwise indicated, all types of *Diuris* relevant to this study (or photographs thereof), and collections cited, have been seen by the author.

Taxonomy

1. *Diuris amabilis* D.L.Jones, ***sp. nov.*** With affinity to *Diuris behrii* Schldl., but differing by its broadly ovate-elliptic labellum midlobe (cuneate in *D. behrii*) with a very short broad basal neck (long narrow basal neck in *D. behrii*) and labellum callus consisting mainly of two heavily papillate, clavate, curved yellow to orange ridges, a lesser central ridge extending onto the lamina and a series of ill-defined secondary papillate ridges radiating out from the main callus ridges onto the proximal part of the midlobe (*D. behrii* has two papillate ridges and a longer very prominent central ridge extending nearly to the labellum apex, without obvious secondary ridges on the midlobe).

Type: New South Wales. Bookham, 16 Oct. 1992, *D.L.Jones 17878 & K.J.Fitzgerald* (holo CANB 631169).

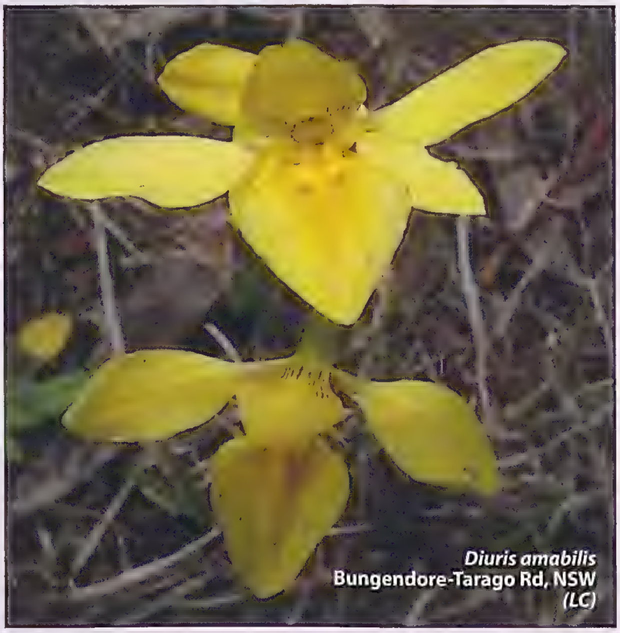
Illustration: Page 110, Jones, D.L., Egan, J. & Wood, T (2008), as *Diuris behrii.*

Description: *Leaves* four to eight, linear to narrowly linear-lanceolate, 10-25 cm long, 3-6 mm wide, tapering to a subacute point. *Scape* 20-50 cm tall, one-five-flowered. *Pedicels* 7-30 mm long. *Ovaries* ellipsoid, 6-9 mm long, 2-3 mm wide. *Flowers* suberect to porrect, 20-30 mm long, 30-45 mm across, bright yellow with some dark streaks and a yellow to orange labellum; lateral sepals pale green. *Dorsal sepal* porrect in proximal half then erect, ovate lanceolate, 13-18 mm long, 7-11 mm wide, usually with a few dark basal streaks, distal margins smooth or irregularly scalloped, apex obtuse to mucronate. *Lateral sepals* obliquely decurved beneath the labellum, parallel, narrowly obovate-spathulate, 18-25 mm long, 3-4.5 mm wide, apex subobtuse. *Petals* nearly horizontal or drooping, spreading or held close to the labellum, 17-27 mm long; claw widening distally into the blade, 3-5 mm long, 2-2.5 mm wide, green or with dark streaks; lamina elliptic to narrowly ovate, 14-22 mm long, 7-10 mm wide, apex narrowly obtuse. *Labellum* porrect near the base then decurved, deeply 3-lobed, 18-28 mm long; lateral lobes suberect beside the column, more or less elongate-triangular, 3-4.5 mm long, 1-2 mm across, inner margin entire, anterior margin irregularly erose to incised, strongly papillate; basal part of labellum and midlobe separated by a neck c. 2-3 mm long, c. 4-5 mm wide; midlobe broadly ovate-elliptic, 16-20 mm long, 11-15 mm wide, margins scalloped and shallowly folded, apex acute to mucronate. *Labellum callus* complex, consisting mainly of two heavily papillate orange ridges 5-7 mm long, each ridge c. 1.5-2 mm across near the apex, these ridges thickened and incurved distally, sometimes with an occasional short accessory lobe, between these main ridges a less developed papillate ridge 8-12 mm long extending onto the lamina, also a series of ill-defined lower papillate ridges radiating out from the main callus ridges onto the proximal part of the midlobe; papillae on the callus are well developed, orange and readily discernible. *Column* porrect from the end of the ovary, 4.5-5.5 mm long, c. 3.5 mm wide. *Column wings* lanceolate to elongate-cuneate, c. 3.5 mm long, c. 1 mm wide, white to cream, margins irregularly toothed. *Anther* ovate, c. 3.5 mm long, c. 2.6 mm wide, cream with brown markings. *Pollinarium* c. 3 mm long, c. 2.5 mm wide; viscidium elliptical, c. 1 mm long, c. 0.5 mm wide. *Stigma* cordate, c. 4 mm long, c. 4 mm wide. *Capsules* broadly ellipsoid, 10-15 mm long, 5-7 mm across.

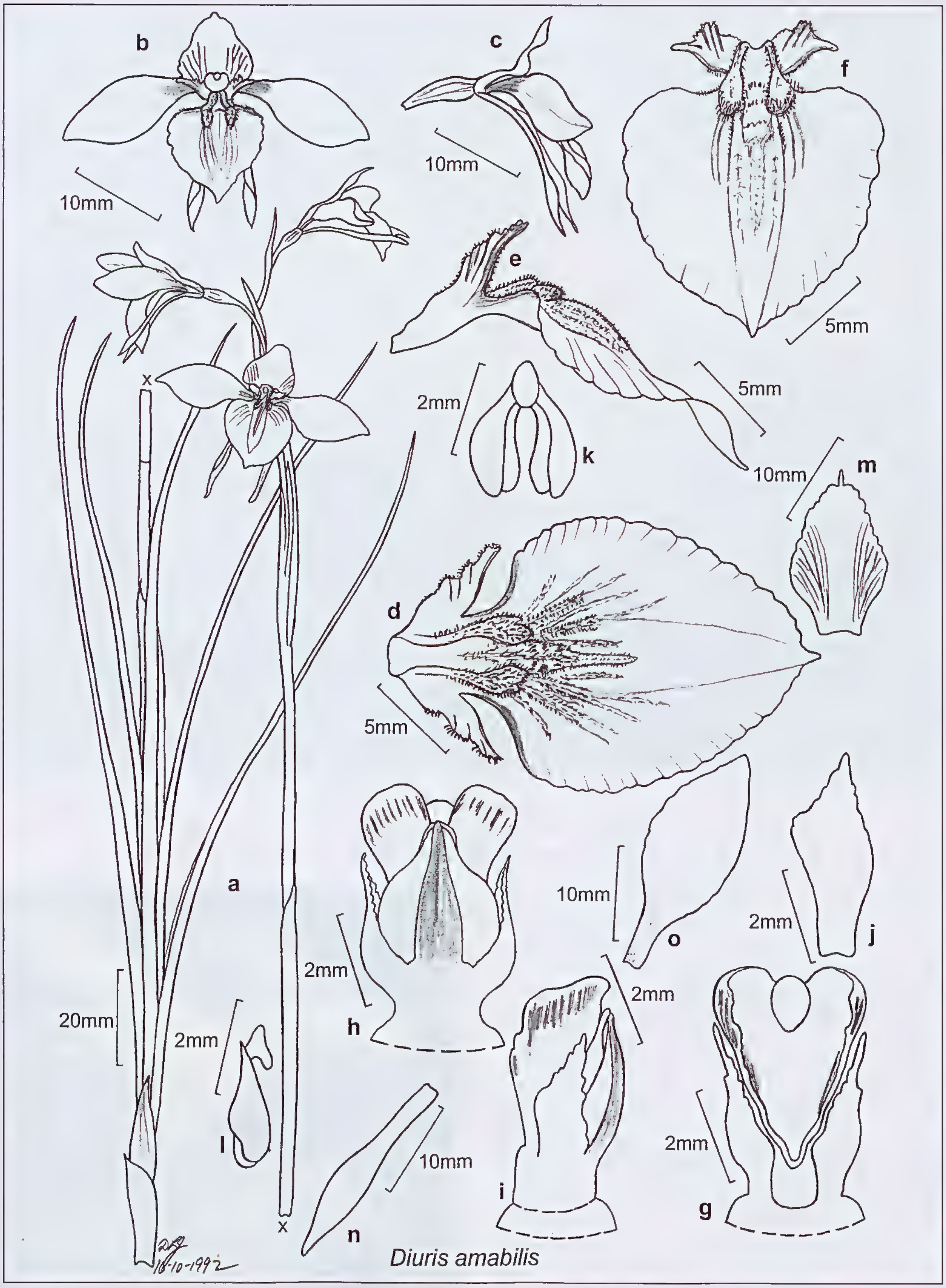
Distribution and ecology: The distribution of the new species is somewhat uncertain due to confusion with *Diuris behrii* but it is known from central northern parts of Victoria more or less north from Toobarac to Wodonga and in New South Wales from Albury to at least as far north as Orange. It is also known from a single site in the ACT. Mainly found in areas of high reliable rainfall, it is prominent in grassy habitats including grassland, grassy forests, grassy woodlands and swamp margins, less commonly in shrubby forests. It is sometimes locally common and forms conspicuous colonies on the grassy verges fringing roads. Soils are mainly moisture-retentive clays, clay loams and loams. It flowers freely without fire. Flowering occurs from late September to November.

Recognition: Spring-flowering *Diuris* from New South Wales, ACT and Victoria characterised by a basal tuft of narrow grass-like leaves, often tall habit (plants commonly 30-40 cm tall) and large suberect to porrect yellow and orange flowers 30 to 45 mm across with a few dark streaks, broad petals, broad dorsal sepal, relatively broad parallel lateral sepals and a trilobed labellum with short narrow papillate lateral lobes with erose to incised margins, large broad midlobe and complex heavily papillate callus.

Similar species: This new species has been included with *Diuris behrii* but is here segregated as distinct. *Diuris behrii*, which is widespread from central and south-eastern parts of South Australia into western Victoria where it extends from the South Australian border west more or less to the Melbourne suburb of Noble Park, has smaller (25-40 mm across) semi-nodding yellow flowers with prominent dark streaks and lines on the dorsal sepal and labellum, a narrower wedge-shaped labellum midlobe (9-12 mm long, 10-13 mm wide) with a long basal neck (3.5-5 mm long, 3-4 mm wide) and a less complex labellum callus with a prominent central ridge extending nearly to the labellum apex. It grows in similar grassy habitats to those of *Diuris amabilis*.



Diuris amabilis
Bungendore-Tarago Rd, NSW
(LC)



***Diuris amabilis*, Bookham, NSW**
a. flowering plant; b. flower from front; c. flower from side; d. labellum from above, flattened; e. labellum from side; f. labellum from front; g. column from front; h. column from rear; i. column from side; j. column wing; k. pollinarium; l. pollinarium from side; m. dorsal sepal; n. lateral sepal; o. petal.
© D.L.Jones 10 October 1992.

Diuris behrii
Flinders Ranges, SA
(RB)

Conservation status: Widespread, common and conserved in National Parks and reserves.

Etymology: The Latin *amabilis* (lovely) referring to the attractive flowers.

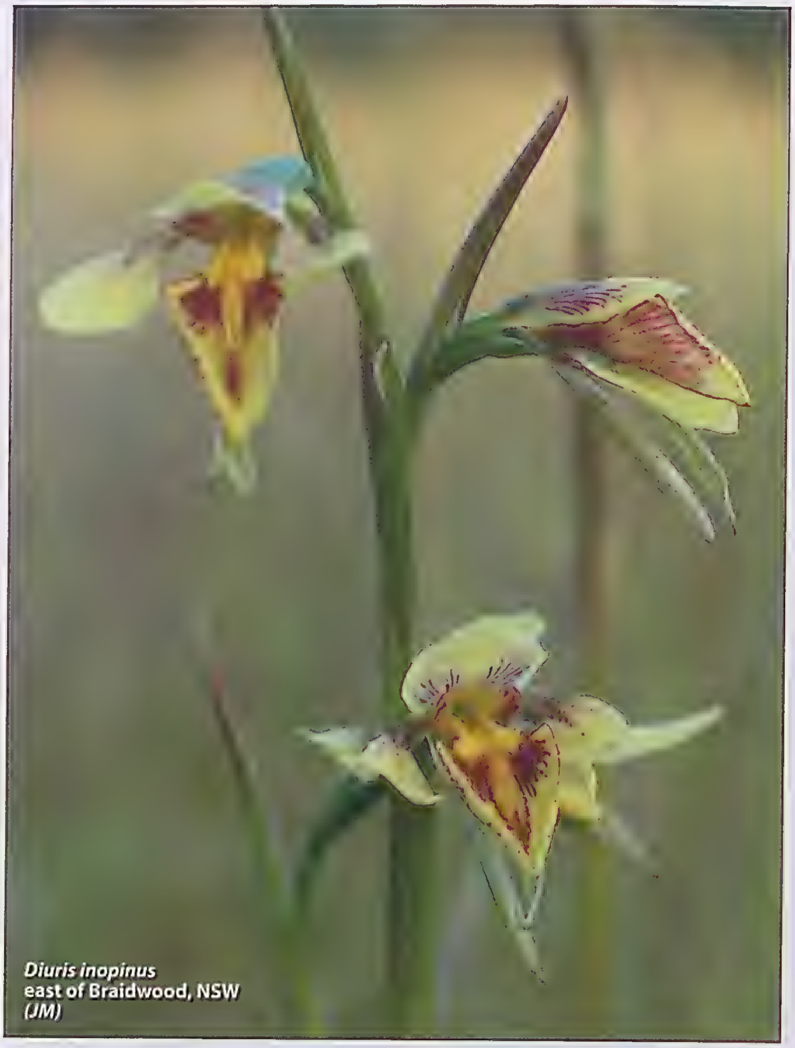
2. *Diuris inopinus* D.L. Jones, ***sp. nov.*** With affinity to *Diuris chryseopsis* D.L.Jones but flowering later (Nov. - Dec. *cf.* Aug. - Oct. for *D. chryseopsis*) and differing by its smaller pale creamy yellow flowers (lemon-yellow in *D. chryseopsis*), an ovate-cuneate labellum midlobe with a long broad tapered basal neck (ovate-lanceolate with very short narrow basal neck in *D. chryseopsis*) and a larger raised thickly ruminate densely papillate callus occupying the basal half of the lamina (two ridges occupying less than a third of the lamina in *D. chryseopsis*), the central part extending as a single narrow tapering papillate ridge nearly to the apex of the midlobe (weak central ridge ending well short of labellum midlobe in *D. chryseopsis*).

Type: New South Wales, Southern Tablelands, c. 10 km east of Braidwood (exact location withheld for conservation purposes), 23 Nov. 2001, *D. Mallinson 633 & D.L. Jones* (holo CANB 634123).

Description: Tuberous terrestrial *herb* growing singly. *Leaves* basal, semi-erect in a loose tuft, two to five, narrowly linear, 150-250 mm long, 2-2.5 mm wide, green, base sheathing, apex acuminate. *Scape* 150-300 mm tall, slender, green, one-three-flowered. *Sterile bracts* closely sheathing, two, narrowly ovate-lanceolate, 40-100 mm long, 7-9 mm wide, acuminate; basal bract usually extended and leaf-like. *Fertile bracts* closely sheathing to spreading, narrowly ovate-lanceolate, 15-50 mm long, 3-4 mm wide, acute to acuminate. *Pedicels* 20-60 mm long, very slender. *Ovaries* obovoid, 8-12 mm long, 2-4 mm wide. *Flowers* porrect to semi-nodding, 18-24 mm across, pale creamy yellow with purple-brown striae on the base of the dorsal sepal, petals and labellum; lateral sepals brownish green. *Dorsal sepal* porrect in the proximal half then obliquely erect, obovate,. 9-12 mm long, 5-6 mm wide, distal margins irregular, apex acute to apiculate. *Lateral sepals* obliquely deflexed, subtending the labellum, narrowly linear-oblanceolate, 13-16 mm long, 2-3 mm wide, parallel; margins involute; apex asymmetrically subacute to obtuse. *Petals* spreading horizontally, widely divergent, the tips often incurved; lamina narrowly ovate-lanceolate, 8-10 mm long, 3-4 mm wide; apex acute; claw 3-5 mm long, blackish, striate, widest near the apex, tapered to the base. *Labellum* 11-13 mm long, porrect to obliquely decurved, deeply three-lobed; lateral lobes narrowly oblong-cuneate, 2.6-3 mm long, c. 1.2 mm wide, divergent, obliquely erect, striate, papillate; proximal margins entire, papillate; distal margins irregularly tapered, papillate; mid-lobe ovate-cuneate, 9-11 mm long, 5-7 mm wide, flat apart from a shallow central longitudinal ridge; proximal margins entire, distal margins unevenly and shallowly scalloped; apex apiculate. *Labellum callus* occupying the basal half of the lamina, thick, raised, with a broad, smooth central channel, the outer edges thickly ruminate and densely papillate, darker yellow than the lamina, extending as a single narrow tapering papillate ridge nearly to the apex of the mid-lobe. *Column* porrect from the end of the ovary, 3.5-4 mm long, 2.8-3 mm wide. *Column wings* oblong-lanceolate, c. 3.5 mm long, c. 1 mm wide. *Anther* ovate, c. 2.5 mm long, c. 2 mm wide, purple-brown. *Pollinarium* c. 3 mm long, c. 2.5 mm wide; *viscidium* elliptic, c. 0.8 mm long; *pollinia* clavate, 2.5 mm long, white, mealy. *Stigma* cordate, c. 3 mm long, c. 2.8 mm wide. *Capsules* not seen.

Distribution and habitat: Known only from the type locality which is a small area on the Southern Tablelands to the east of Braidwood. Grows in moist grassland and among tussocks and low shrubs in snowgum woodland in well-structured brown clay loam. Altitude 450-500 m. Flowering occurs in November and early December.

Recognition: Characterised by late spring-early summer flowering habit, basal tuft of grass-like leaves, moderately small, (18-24 mm across), pale creamy yellow flowers with purple-brown striae on the base of the dorsal sepal, petals and labellum, an obovate proportionately narrow (to 12 x 6 mm) dorsal sepal, narrowly ovate-lanceolate petals and an ovate-cuneate labellum with a long tapered basal neck, papillate labellum lateral lobes with irregular distal margins and a large callus consisting of two thickly ruminate densely papillate ridges flanking a smooth central channel, extending as a single narrow tapering papillate ridge nearly to the midlobe apex.



Diuris inopinus
east of Braidwood, NSW
(JM)

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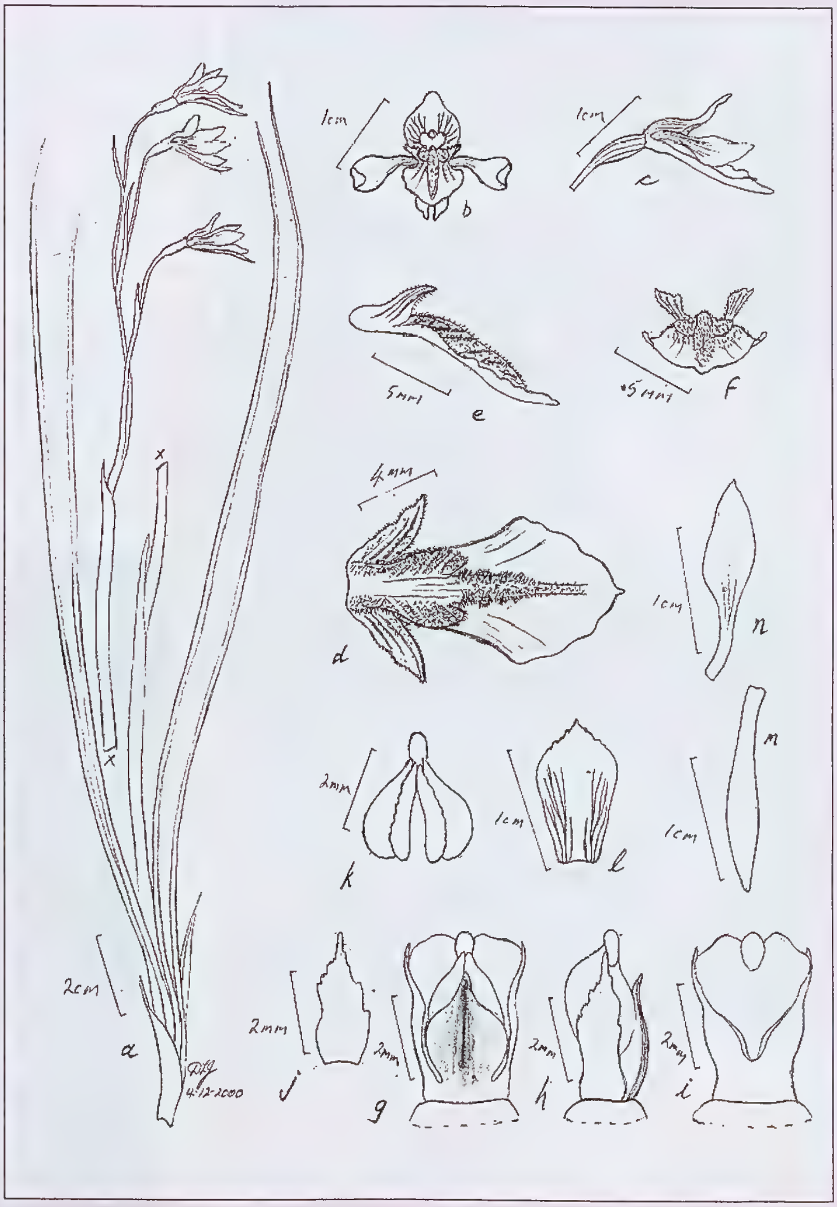
Similar species: A very distinctive species which has some affinities with *Diuris chryseopsis*, a widespread and common species which flowers earlier (August to October) and has larger flowers which are brighter lemon yellow. *Diuris chryseopsis* can also be readily distinguished from the new species by its labellum which has a large ovate midlobe with a short narrow basal neck (relatively small ovate-cuneate midlobe in *Diuris inopinus* with a long broadly tapered basal neck) and a relatively simple callus consisting of two thick papillate ridges flanking a weak central ridge which ends well short of the labellum midlobe. By contrast the callus of *Diuris inopinus*, which dominates the basal part of the labellum, is large and complex consisting of two thick densely papillate ruminate ridges flanking a smooth central channel with a well-developed papillate central ridge extending nearly to the labellum apex.

Conservation status: Of very restricted distribution and known from less than 20 plants at the Type locality. Much of the area where it grows has been cleared for agriculture and searches of surrounding areas failed to locate any more plants. A classification status of critically endangered seems appropriate under the circumstances.

Etymology: The Latin *inopinus*, unexpected, surprising, referring to the appearance of this species in a remnant patch of alienated habitat.



Diuris inopinus, east of Braidwood NSW, 4 Dec. 2000, D. Mallinson.
a. flowering plant; b. flower from front; c. flower from side; d. labellum from above, flattened; e. labellum from side; f. labellum from front; g. column from rear; h. column from side; i. column from front; j. column wing; k. pollinarium; l. dorsal sepal; m. lateral sepal; n. petal.
© D.L.Jones 4 December 2000.

Acknowledgements

Much appreciation to the directors and curators at CANB, MEL and AD for access to specimens. Thanks also to Mark Clements for access to photos of type specimens, Bob Bates for discussions about *Diuris behrii*, Dave Mallinson for bringing *Diuris inopinus* to my attention, Marion Garratt, Karina Richards and Emma Toms for technical assistance, Bob Bates, June Niejalke, Lachlan Copeland and Jackie Miles for photos and Barbara Jones for companionship on field trips and reading the manuscript.

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Two threatened new species of Orchidaceae from Mount Canobolas in Central-western New South Wales

by David L. Jones

Abstract

Two threatened species of Orchidaceae, namely *Paraprasophyllum canobolense* and *Caladenia boweri*, are described here as new. Each new species is compared and contrasted to similar taxa and notes are given on their distribution, habitat, etymology and conservation status.

Key Words

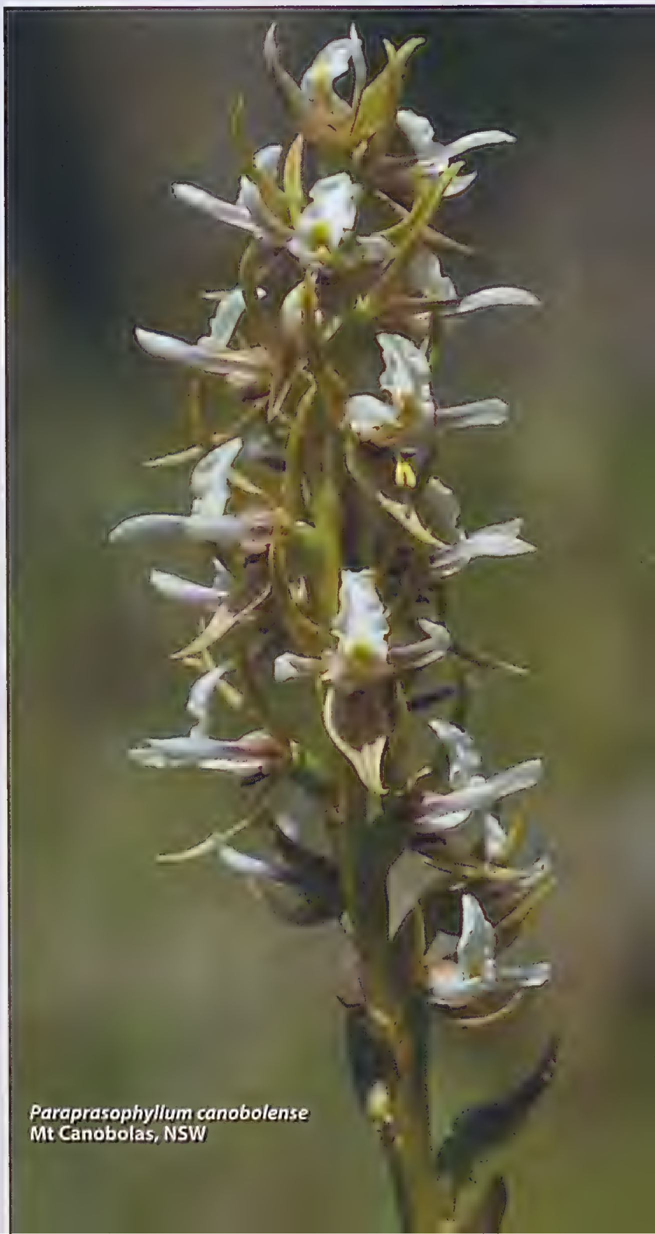
Orchidaceae, *Paraprasophyllum canobolense*, *Paraprasophyllum odoratum*, *Caladenia boweri*, *Caladenia reticulata*, *Caladenia fitzgeraldii*, new species, Mount Canobolas, New South Wales, Australian Capital Territory, Australian flora.

Introduction

Mount Canobolas, an extinct volcano on a western spur of the Great Dividing Range in the Central Tablelands region of New South Wales, rises to 1397 metres in elevation and is a significant feature of the landscape to the west of Orange. Most of the native vegetation communities on the mountain are woodlands with a grassy groundcover. The predominance of one tree species, Silver-leaf Candlebark (*Eucalyptus canobolensis*), which is endemic on the mountain, is unique (Hunter 2002). An important part of the mountain is conserved in the Mount Canobolas State Conservation Area but this area is threatened by a recent proposal to establish more than 60 km of mountain bike tracks in the reserve (see https://savemtcanobolassca.com/). Two species of threatened Orchidaceae that are endemic on Mt Canobolas are here described as new. One species is named in the recently erected genus *Paraprasophyllum*, (Clements & Jones 2019), the other in *Caladenia*. Notes on their distribution, ecology, distinguishing features, etymology and conservation status are provided.

Taxonomy

1. *Paraprasophyllum canobolense* D.L.Jones, ***sp. nov.*** With affinity to *Paraprasophyllum odoratum* (R.S.Rogers) M.A. Clem. & D.L. Jones, but differs by its larger flowers (15-20 x 15-18 mm *cf.* 13-17 x 9-12 mm in *P. odoratum*), widely spreading tepals, distinctly spathulate petals (*cf.* linear-tapered in *P. odoratum*), labellum with finely but irregularly crenulate margins (*cf.* undulate in *P. odoratum*) and relatively broad ovate-oblong callus plate c. 3 mm wide (*cf.* narrowly

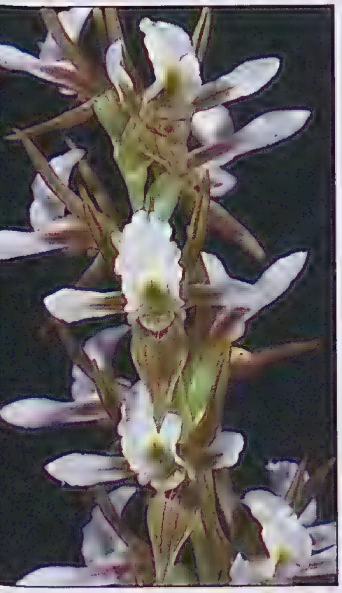


Paraprasophyllum canobolense
Mt Canobolas, NSW

tapered callus plate c. 1.5 mm wide in *P. odoratum*); also with *Paraprasophyllum jeaneganiae* (D.L. Jones) M.A.Clem. & D.L.Jones from which it can be distinguished by its non-gibbous lateral sepals (*cf.* gibbous in *P. jeaneganiae*), narrower labellum with an ovate-oblong callus (*cf.* wedge-shaped in *P. jeaneganiae*) and column with the anther about as wide as the stigmatic plate (*cf.* anther much narrower than stigmatic plate in *P. jeaneganiae*).

Type: New South Wales. Central Tablelands; Mount Canobolas, 19 November 1988, *Colin Bower* (holo CANB).

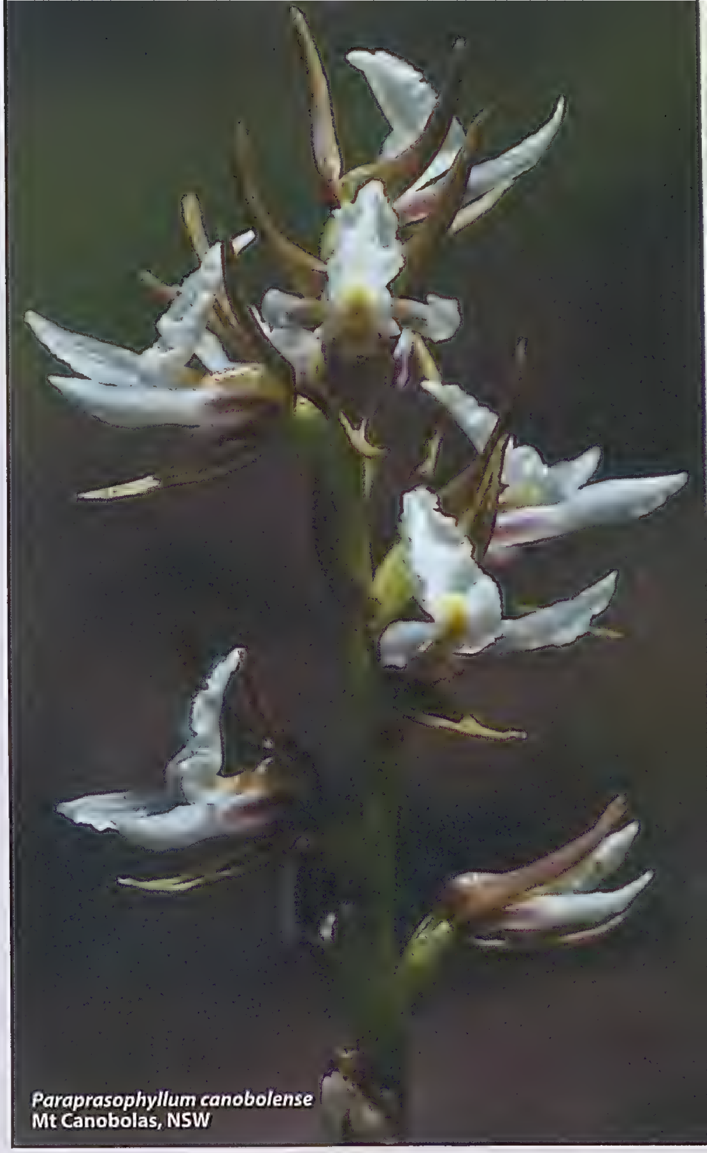
Description: Robust, glabrous, terrestrial, tuberous *herb* 40-70 cm tall. *Tubers* not seen. *Leaf* terete, 30-60 cm long, dark green; base 4-5 mm across, reddish purple; free lamina 10-20 cm long, erect to suberect, green, tip often withered at anthesis. *Inflorescence* a dense spike 8-12 cm long, consisting of c. 12-25 flowers. *Floral bracts* ovate, c. 4 mm long, c. 4 mm wide, bluntly apiculate. *Ovary* narrowly obovoid, 4.5-5.5 mm long, 2.5-3 mm wide, green, shiny, at c. 60° to the rachis. *Flowers* subsessile, opening widely, 15-20 mm long, 15-18 mm across; sepals greenish brown to brown; petals white, with a brownish band; labellum lamina white; callus yellowish green with a white margin. *Dorsal sepal* decurved, ovate-lanceolate, 9-11 mm long, c. 4 mm wide, 3 darker striae prominent; apex subacute. *Lateral sepals* free, widely divergent (to 18 mm apart), erect and recurved, linear-lanceolate, 9-11 mm long, c. 2.5 mm wide; base curved; margins strongly involute throughout. *Petals* spreading or the tips incurved, spathulate, 10-11.5 mm long, c. 3 mm wide at the dilated apex, white with a pinkish central band, distal margins widely dilated, irregular, apex subobtuse. *Labellum* sessile, white; proximal half porrect, sharply bent back at more than right angles near the middle, the distal half recurved, often extending back through the lateral sepals. *Labellum lamina* oblong in outline when flattened, 10-12 mm long, 4.5-5 mm wide; basal part oblong-elliptic, flat or shallowly curved when viewed from the side; proximal margins shallowly curved, entire; distal margins undulate and also finely but irregularly crenulate; apex obtuse. *Callus* ovate-oblong in outline, 5-6 mm long, c. 3 mm wide, yellowish green with a white margin, raised, channelled, extending just beyond the labellum bend, the base with a prominent fleshy dark green thickening; apex shallowly emarginate. *Column* porrect from the end of the ovary, c. 4 mm long, c. 3.5 mm wide, visible from the side in the gap between the dorsal sepal and the petals; appendages narrowly oblong, slightly falcate, c. 3.5 mm long, c. 0.8 mm wide, shorter than the stigmatic plate, white or pinkish. *Anther* ovate, c. 2.5 mm long, c. 2 mm wide, purple-brown, about as wide as the stigmatic plate, shorter than the rostellum. *Pollinarium* c. 3 mm long; viscidium ovate, c. 0.4 mm long, white; hamulus ligulate, c. 0.5 mm long, slender; pollinia narrowly clavate, c. 2.5 mm long, yellow, sectile. *Stigma* narrowly elliptical-quadrate, c. 2 mm long, c. 2 mm wide; rostellum about as high as the appendages. *Capsules* not seen.



Paraprasophyllum canobolense
Mt Canobolas, NSW

Flowering period: Late October and November.

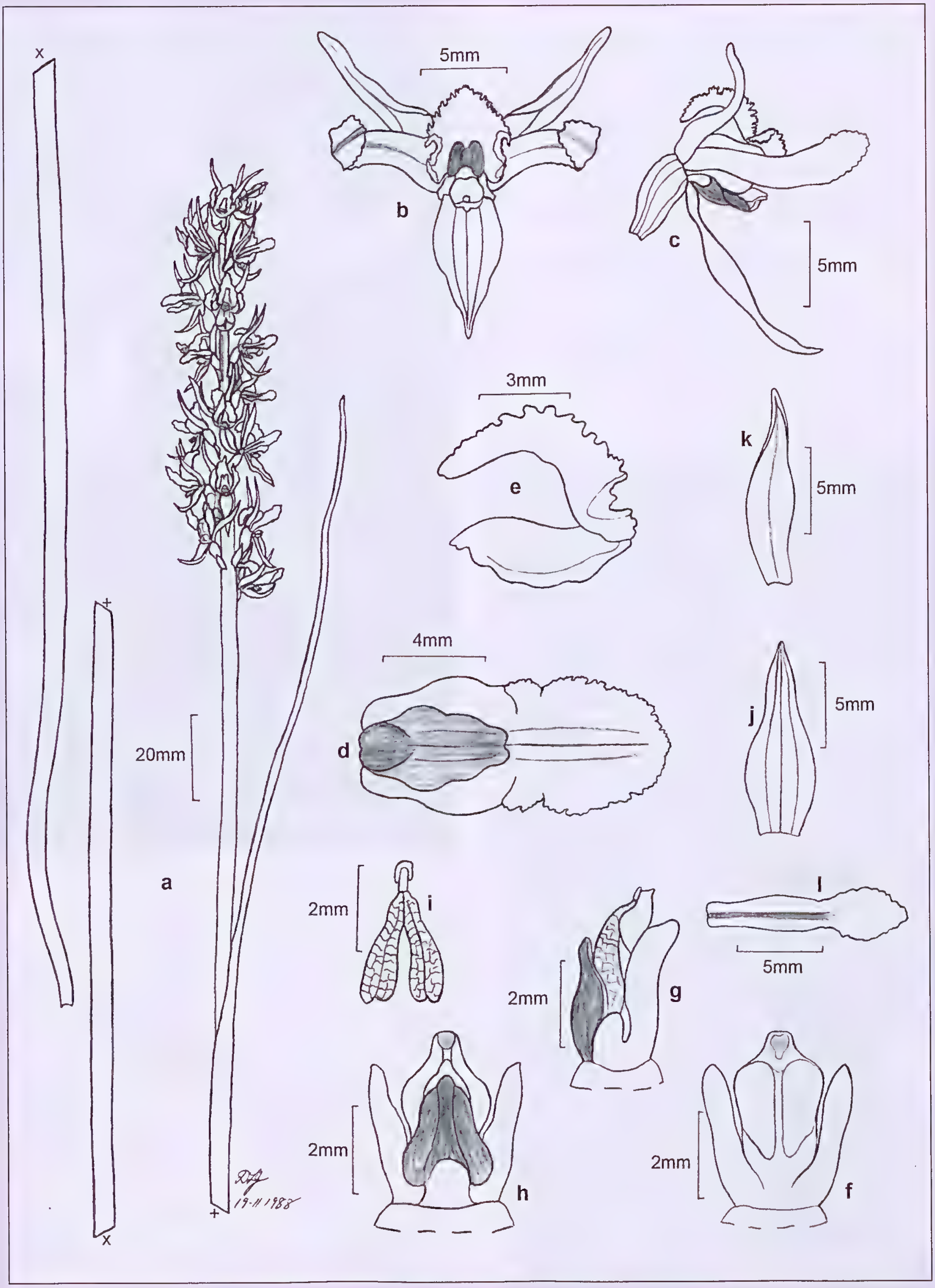
Distribution and habitat: Known with certainty only from Mt Canobolas near Orange in the Central-west of NSW. It grows on the broad upper slopes and ridge tops in grassy open forest dominated by *Eucalyptus macrorhyncha, Eucalyptus dives* and *Eucalyptus canobolensis* in freely draining basaltic loam. Altitude: c. 1,100-1,200 m.



Paraprasophyllum canobolense
Mt Canobolas, NSW

Recognition: *Paraprasophyllum canobolense* is a robust species from montane grassy forest with large crowded flowers (15-20 mm long, 15-18 mm across), greenish brown to brown, widely spreading lateral sepals that are shallowly curved at the base, the margins strongly involute throughout, spathulate spreading petals with irregular margins, oblong labellum to 12 mm x 5 mm which is sharply bent near the middle, the distal half erect and recurved with tightly undulate and finely but irregularly crenulate margins, yellowish green ovate-oblong callus (c. 6 x 3 mm) which extends just beyond the labellum bend, and a large column (c. 4 x 3.5 mm) with the anther about as wide as the stigmatic plate and the rostellum longer than the appendages.

Similar species: This species is part of the *Paraprasophyllum patens* (R.Br.) M.A.Clem. & D.L.Jones / *P. odoratum* (R.S.Rogers) M.A.Clem. & D.L.Jones complex (see also Jones & Copeland 2018, Jones 2019). It can be distinguished from both of these species by its larger flowers with widely spreading tepals, distinctly spathulate petals, labellum with finely but irregularly crenulate margins and relatively short callus plate.



***Prasophyllum canobolense* Mt Canobolas, NSW, Colin Bower.**
a. flowering plant; b. flower from front; c. flower from side; d. labellum from above, flattened; e. labellum from side; f. column from front; g. column from side; h. column from rear; i. pollinarium; j. dorsal sepal; k. lateral sepal; l. petal.
© D.L.Jones, drawn 19 Nov. 1988.

The new species also has affinities with the ACT species *P. jeaneganiae* (D.L. Jones) M.A.Clem. & D.L.Jones which can be distinguished by its basally gibbous lateral sepals, broader labellum with a wedge-shaped callus and column with the anther much narrower than the stigmatic plate. *Paraprasophyllum canobolense* shares some features with six recently named species from the northern Tablelands of NSW but is also remarkably different from all of them (see photos Jones & Copeland 2018), again emphasising the incredible diversity in this group of leek orchids.

Notes: This species flowers freely after fire but is rarely seen in overgrown habitat. According to Colin Bower, who first recognised the distinctiveness of the species, "it was relatively common in an area of several hectares after wildfires in 1982/3 but dwindled away over the next decade and has not been seen for a long time". A wildfire in February 2018 that burnt about 70% of the State Conservation Area on Mt Canobolas resulted in the reappearance of this elusive species in November 2018.

Conservation status: Of restricted distribution but conserved in Mount Canobolas State Conservation Area, but there threatened by proposed inappropriate development; the population consists of c. 90 plants in an area of approximately 50 ha (C. Bower pers. comm.). A ROTAP code of 1EC is suggested following the criteria of Briggs & Leigh (1996).

Etymology: After Mt Canobolas, the type location and only place where this species is known to occur.

2. *Caladenia boweri* D.L.Jones, ***sp. nov.*** With affinity to *Caladenia fitzgeraldii* Rupp but differing by its pink flowers (*cf.* yellowish to yellowish green flowers with red suffusions and stripes in *C. fitzgeraldii*), 3-lobed pink labellum with darker pink veins (cf. unlobed or indistinctly lobed red to maroon labellum with yellowish base in *C. fitzgeraldii*) and numerous (35-40 pairs) reddish-pink marginal teeth on the labellum extending right to the apex (cf. 15-20 pairs of red teeth confined to basal half of labellum in *C. fitzgeraldii*).

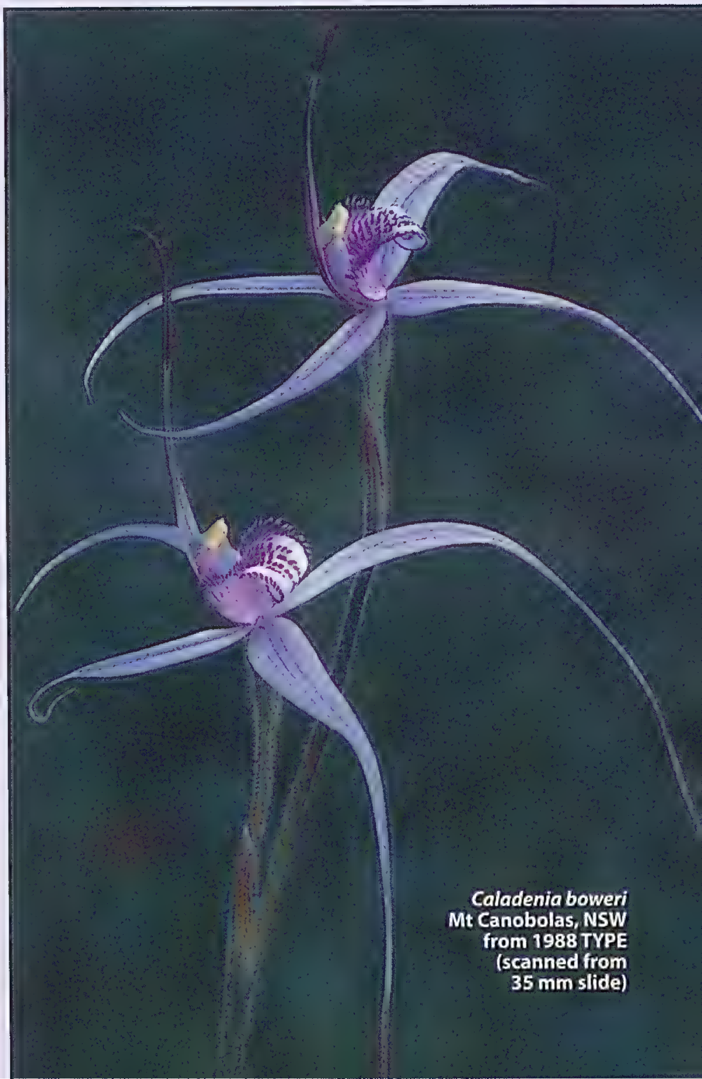
Type: New South Wales. Central Tablelands; Mt Canobolas, 28 Oct. 1988, *Colin Bower* (ORG 5732) (holo CANB).

Description: *Leaf* details unknown. *Flower stem* c. 300 mm tall, c. 2.5 mm thick, densely hairy, 2-flowered. *Stem trichomes* c. 3 mm long, whitish, multicellular, eglandular. *Sterile bract* free from stem, oblong-obovate when flattened, c. 30 mm long, c. 7 mm across at widest point, covered with short glandular and eglandular trichomes, tapered sharply to an acuminate apex. *Fertile bracts* enclosing base of pedicel, margins involute, oblong-obovate when flattened, 15-20 mm long, 6-7 mm across, covered with short glandular and eglandular trichomes, apex acuminate. *Ovaries* narrowly elliptical, c. 10 mm long, c. 3 mm across, covered with short glandular trichomes. *Flowers* 50–60 mm across, pink, tepals with three-five darker veins, labellum slightly darker pink with darker pink veins and reddish-pink calli and marginal teeth; column translucent pink; sepals with brown flattish clubs 14–20 mm long; petals without clubs. *Dorsal sepal* erect and incurved, 45–50 long, 2.5–3.5 mm across; clubs 14-16 mm long, with protruding darkish elliptical osmophore cells 0.1-0.2 mm long. *Lateral sepals* spreading stiffly to obliquely decurved, 50–70 mm long, 5–6 mm across, widely divergent; clubs 15-20 mm long, with protruding darkish elliptical osmophore cells 0.1-0.2 mm long. *Petals* spreading stiffly, 35–40 mm long, 3-3.5 mm across, drawn out into a long-acuminate to filiform apex. *Labellum* ovate-lanceolate when flattened, 14–16 mm long, 9–11 mm across, 3-lobed, apex of midlobe recoiled to inrolled; margins of lateral lobes with c. 15 pairs of thickened teeth 1-3.5 mm long; margins of midlobe with numerous (c. 20-25 pairs) crowded short bluntish teeth decrescent to apex. *Basal calli* 6, ovoid, c. 2 mm long, held erect on narrow stalk. *Lamina calli* broadly hockey-stick shaped, flat topped, longest (c. 1.5 mm) near basal calli, decrescent to apex (c. 0.4 mm long), in 6 rows to base of midlobe, distal calli small and scattered. *Column* erect and incurved, 12–13 mm long, c. 5 mm across; anterior and dorsal basal area with short glandular trichomes; basal glands ovoid, c. 1.2 mm long, yellow. *Anther* c. 2.5 mm long, shortly rostrate, dorsal area green, anterior margins yellow with red stain. *Pollinia* c. boomerang-shaped, c. 3 mm long, c. 1 mm across, yellow, mealy. *Stigma* oblate-circular, c. 3 mm across, sunken. *Capsules* not seen.

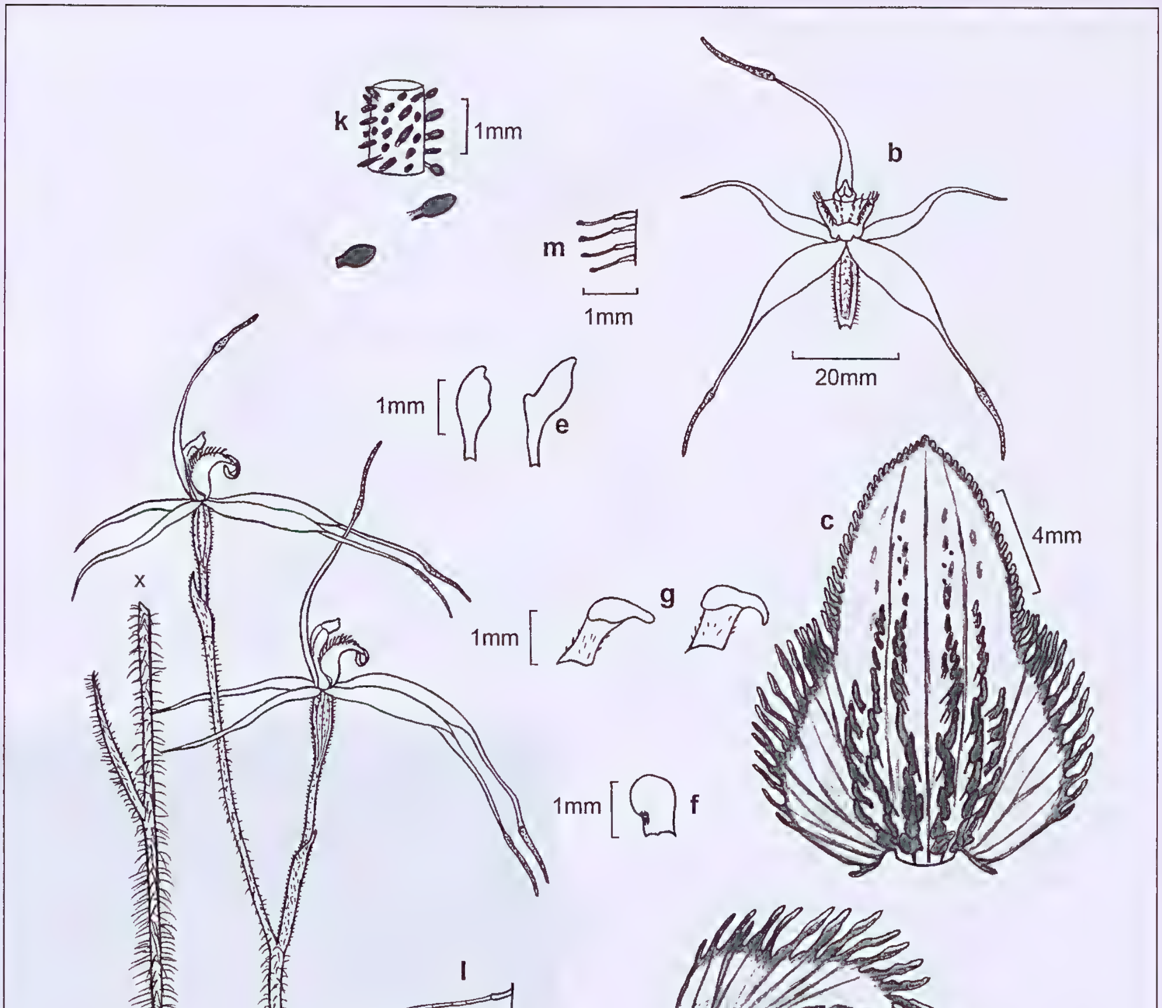
Flowering period: Late October and probably November.

Distribution: Known from a single specimen collected on Mt Canobolas near Orange in the Central-west of NSW. The habitat is grassy open forest dominated by *Eucalyptus macrorhyncha*, *Eucalyptus dives* and *Eucalyptus canobolensis* in freely draining basaltic loam. Altitude: c. 1,100-1,200 m.

Notes: This distinctive and readily recognisable spider orchid is known from only a single collection at a known site but not seen since 1988 despite regular searches, including the years following bushfires. Despite its obvious rarity it is described here as new because of its distinctive morphology.



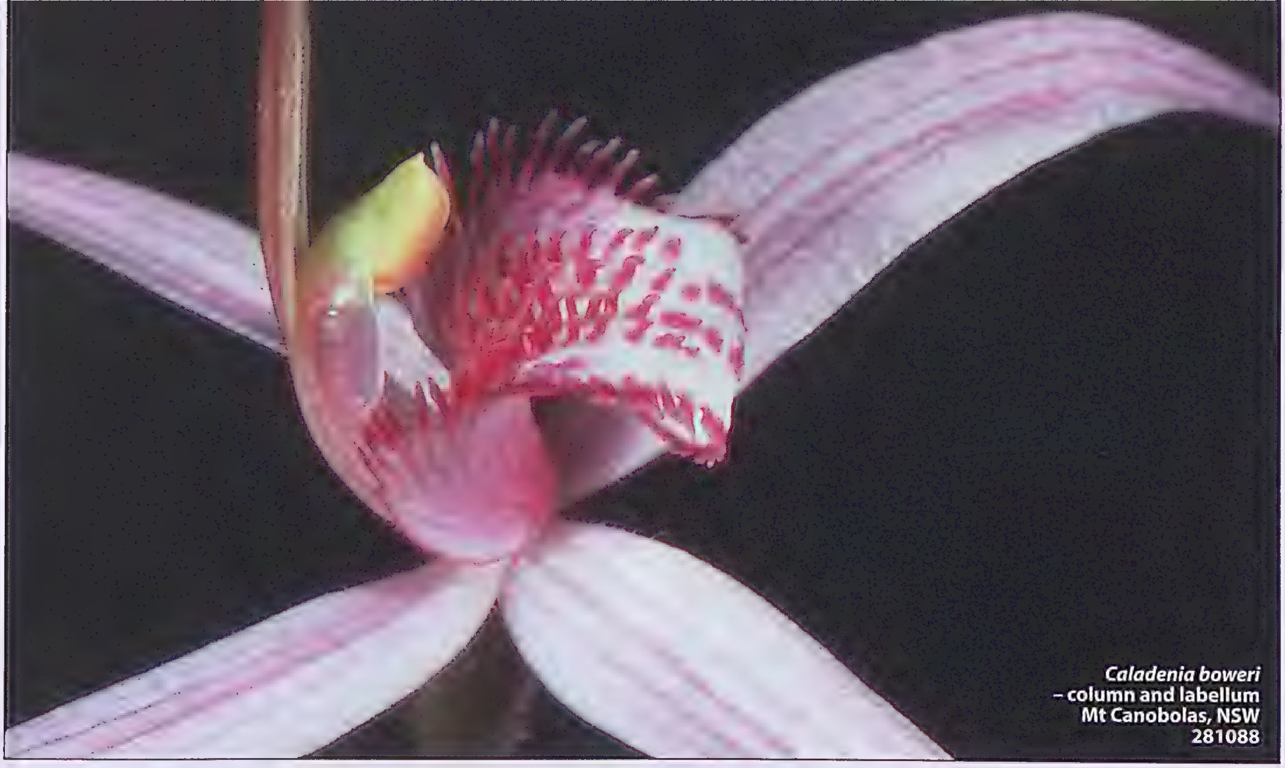
Caladenia boweri
Mt Canobolas, NSW
from 1988 TYPE
(scanned from
35 mm slide)



Caladenia boweri **Mt Canobolas, NSW, Colin Bower.**

a. inflorescence; b. flower from front; c. labellum from above, flattened; d. longitudinal section of labellum; e. basal calli; f., g. lamina calli; h. column from front; i. column from side; j. pollinium; k. part of sepaline osmophore and glands; l. stem hairs; m. ovary hairs.

© D.L.Jones, drawn 28 Oct.1988 (part of type).



Caladenia boweri
– column and labellum
Mt Canobolas, NSW
281088

Recognition: Striking spring-flowering spider orchid with pink flowers, stiffly held and widely spreading tepals, the sepals with thin prominent brownish clubs (petals lacking clubs), labellum pink with darker pink veins and numerous (35-40 pairs) reddish-pink marginal teeth and six rows of reddish-pink hockey-stick shaped calli extending to the base of the midlobe, the column translucent pink with ovoid yellow basal glands.

Similar species: This distinctive species has no obvious close allies although the general habit of the flower and the sepaline clubs link it with the *Caladenia reticulata* group, a complex of c. 25 taxa distributed from southern Queensland to King Island in Bass Strait and west to South Australia. Characteristically these orchids have relatively small flowers with apical clubs on the sepals but not on the petals. None of these orchids have pink flowers, the predominant colour in the group being greenish yellow to yellowish with red suffusions, streaks and stripes. Geographically the closest member of this group to the new species is *Caladenia fitzgeraldii* which was described in 1942 by H.M.R.Rupp based on specimens collected by William Woolls from near Mudgee and near Bathurst, central-west NSW. This species, which also occurs naturally on Mt Canobolas, can be immediately distinguished from Caladenia boweri by its pale yellow to yellowish-green flowers with red suffusions and stripes, the labellum unlobed or obscurely lobed and with many fewer marginal teeth. The red sepaline clubs are also much thicker than the flattish brown clubs of the new species.

Conservation status: Known from a single specimen and not relocated despite several searches; a coding of Critically Endangered seems appropriate.

Etymology: *boweri* after Colin Charles Bower (1948-), entomologist, biologist, eminent authority on the pollination of Australian orchids and discoverer of this species.

Acknowledgements

Thanks to Colin Bower for bringing these species to my attention, checking the manuscript and use of his valuable photographs, Jean Egan for preparing my drawings for publication, Mark Clements for locating the specimen of *Caladenia boweri* in CANB, Emma Toms for help with specimens in the herbarium, Brendan Lepschi for providing access to specimens at CANB, and Barbara Jones for companionship in the field and reading the manuscript.

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New Combinations in Australian Orchidaceae

by David L. Jones

The following new combinations are required to accommodate different views held at generic rank in taxonomy.

Pterostylis extensa (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos extensus* D.L. Jones, *Austral. Orch. Rev.* 83(4): 27-28, fig. 1 (2018).

Pterostylis foliacea (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos foliaceus* D.L. Jones, *Austral. Orch. Rev.* 83(4): 30-31, fig. 2 (2018).

Pterostylis multisignata (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos multisignatus* D.L. Jones, *Austral. Orch. Rev.* 83(4): 33-34, fig. 3 (2018).

Pterostylis petiolata (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos petiolatus* D.L. Jones, *Austral. Orch. Rev.* 83(4): 36-37, fig. 4 (2018).

Pterostylis straminea (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos stramineus* D.L. Jones, *Austral. Orch. Rev.* 83(4): 39-40, fig. 5 (2018).

Pterostylis unicornis (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Plumatichilos unicornis* D.L. Jones, *Austral. Orch. Rev.* 83(4): 42-44, fig. 6 (2018).

Pterostylis readii (D.L.Jones & L.M. Copel.) D.L.Jones, ***comb. nov.*** Basionym: *Bunochilus readii* D.L. Jones & L.M. Copel., *Austral. Orch. Rev.* 82(6): 48-50 (Dec 2017-Jan 2018).

Pterostylis ampliata (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Diplodium ampliatum* D.L. Jones, *Austral. Orch. Rev.* 84(4): 36-37, fig. (2019).

Pterostylis venusta (D.L.Jones) D.L.Jones, ***comb. nov.*** Basionym: *Diplodium venustum* D.L. Jones, *Austral. Orch. Rev.* 84(4): 39, fig. (2019).

Corysanthes autumnalis (A.P. Brown) D.L. Jones, ***comb. nov.*** Basionym: *Corybas autumnalis* A.P. Brown, *The Orchadian* 19(9): 392-394 (2019).

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New Combinations in the Pterostylidinae

by David L. Jones and Christopher J. French

Taxonomists and herbaria throughout Australia hold different taxonomic views at generic level within the subtribe *Pterostylidinae*. The following new combinations are required to accommodate these different views.

Pterostylis actites (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium actites* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(3): 33-35 (2019).

Pterostylis brevisepala (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium brevisepalum* D.L.Jones & C.J.French, *Austral. Orchid Rev* 84(3): 35-38 (2019).

Pterostylis crispula (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium crispulum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(1): 21-23, fig.1 (2019).

Pterostylis gracillima (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium gracillimum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(1): 24-26, fig.2 (2019).

Pterostylis grossa (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium grossum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(3): 39-40 (2019).

Pterostylis polyphylla (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium polyphyllum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(3): 40-42 (2019).

Pterostylis saxum (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium saxum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(1): 26-28, fig.3 (2019).

Pterostylis scabrella (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium scabrellum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(1): 28-30, fig.4 (2019).

Pterostylis setulosa (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium setulosum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(1): 30-32, fig.5 (2019).

Pterostylis tylosa (D.L.Jones & C.J.French) D.L.Jones & C.J.French, ***comb. nov.*** Basionym: *Diplodium tylosum* D.L.Jones & C.J.French, *Austral. Orchid Rev.* 84(3): 42-44, (2019).

Acknowledgements

Much appreciation to Anna Monro for assistance in interpretation of the International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) and review of this paper.

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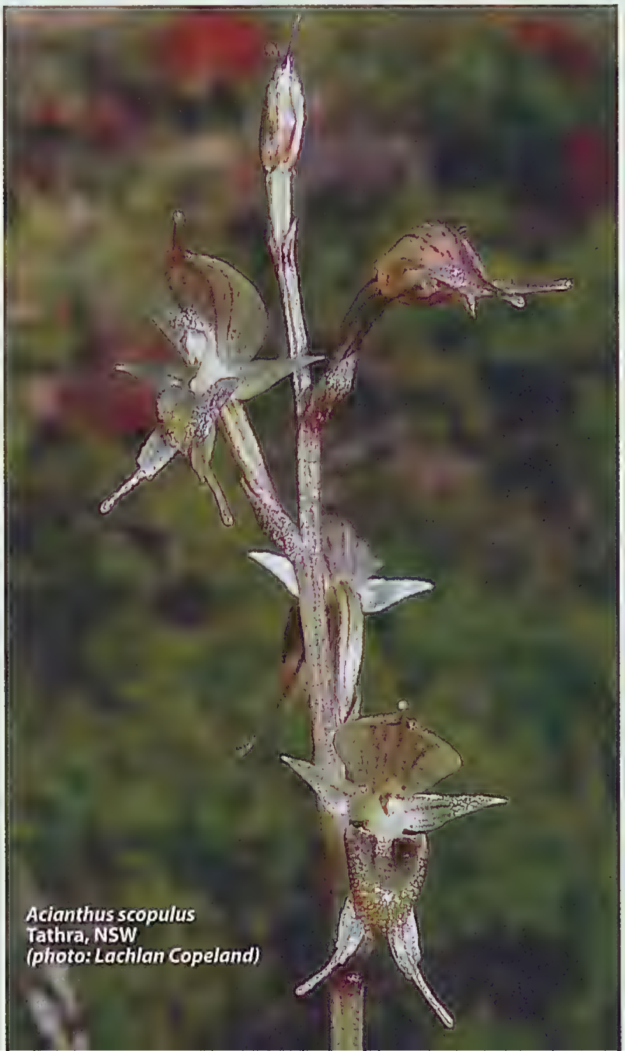
Acianthus scopulus, (Orchidaceae: Acianthiinae), a rare new species from the Far South Coast of New South Wales

by David L. Jones

Abstract

Acianthus scopulus, a rare new species with affinities to *Acianthus fornicatus* R.Br. is described from near Tathra on the far South Coast of New South Wales. Notes are provided on its distinguishing features, distribution, habitat, flowering period, etymology and conservation status.



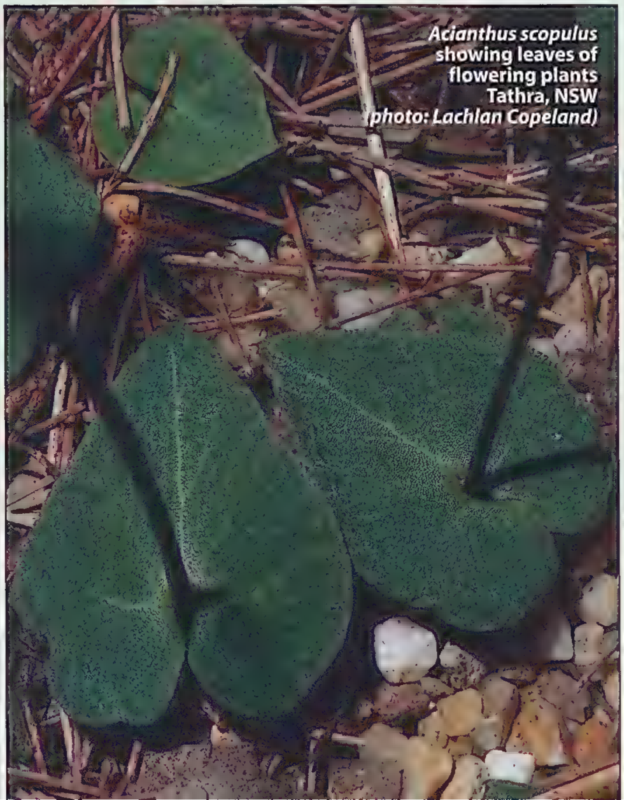
Acianthus scopulus
Tathra, NSW
(photo: Lachlan Copeland)

Key Words

Orchidaceae, *Acianthus scopulus*, *Acianthus fornicatus*, new species, Australian flora, New South Wales.

Introduction

Bishop (1996) was the first author to report the existence of a novel small-flowered species of *Acianthus* from near Tathra on the far south coast of New South Wales. He drew attention to its relationships within the genus when he applied the informal phrase name "*Acianthus* sp. aff. *fornicatus* (Tathra)" to the taxon, thus linking the species to the *Acianthus fornicatus* group which is characterised by the dorsal sepal closely hooding the column. This species is here described as new on the basis of significant morphological features.



Acianthus scopulus showing leaves of flowering plants
Tathra, NSW
(photo: Lachlan Copeland)

Taxonomy

Acianthus scopulus D.L.Jones, ***sp. nov.*** With affinity to *Acianthus fornicatus* R.Br. but differing by its shorter very slender habit, smaller leaves, few-flowered racemes, much smaller flowers (6-7 mm long in *A. scopulus cf.* 10-14 mm long in *A. fornicatus*), narrower dorsal sepal (6-7 x 2-3 mm in *A. scopulus cf.* 9-12 x 5-6 mm in *A. fornicatus*) weakly hooding the column (strongly hooding column in *A. fornicatus*), smaller lateral sepals and petals and smaller labellum (4-4.5 mm long in *A. scopulus cf.* 5-6 mm in *A. fornicatus*) with fewer and much smaller papillae.

Type: New South Wales, near Tathra (exact locality withheld for conservation purposes), 23 June 1992, *D.L.Jones 9527* (holo CBG 9807208).

Illustration: Plate 417, Bishop (1996).

Description: Glabrous, tuberous terrestrial *herb* growing in small vegetative colonies. *Leaf* cordate, 10-20 x 8-15 mm, dark green above, purplish beneath, margins entire, apex apiculate, on a stalk 1-2 cm tall. *Raceme* 50-90 mm tall, slender, pinkish, 1-6-flowered. *Flowers* not crowded, obliquely erect to porrect, 6-7 mm long, translucent pinkish with dark pink to reddish stripes and markings, labellum and callus dark purple. *Floral bracts* ovate, c. 3 x 3 mm, acuminate. *Ovary* linear, 3-3.5 mm long, c. 1 mm across, curved, slightly verrucose. *Dorsal sepal* weakly hooding the column, ovate, 6-7 x 2-3 mm, translucent pinkish, central band and two adjacent veins reddish, dorsal surface near apex papillate; apical club linear-terete, 1.5-2 mm long, weakly papillate. *Lateral sepals* projected forwards beneath the labellum, 5.5-6.5 x 1 mm, narrowly linear-lanceolate, parallel, translucent pinkish with a red central stripe; apical clubs linear-terete, 1.5-2 mm long, papillate. *Petals* spreading widely, ovate-lanceolate, 2.5-3 x 1 mm, translucent pinkish with a red central stripe and margins, acuminate. *Labellum* obliquely decurved, more or less cuneate but with strongly recurved margins and becoming elliptic-cordate when flattened, 4-4.5 x 2-3 mm, concave in proximal half, shallowly decurved distally; apex acute to apiculate. *Callus* occupying most of the ventral surface of the lamina, fleshy, appearing rugose, papillate near apex; central band c. 0.4 mm wide, transversely rugulose. *Basal glands* comma-shaped, c. 0.8 mm long, curved. *Column* curved, c. 3 mm long, green or pinkish, widest at base where c. 1 mm across. *Anther* c. 0.6 mm long. *Stigma* c. 0.6 mm across. *Pollinarium* c. 0.7 mm across; viscidium c. 0.2 mm across; pollinia eight, clavate, yellow. *Capsules* not seen.

Distribution and habitat: NSW, where known only from coastal headlands overlooking the Pacific Ocean near Tathra on the far south coast; 10-50 m alt. Grows among moss and lichens in dense litter under stunted *Melaleuca armillaris* in shallow black loam over granite.

Flowering: May to June.

Recognition: Short very slender winter-flowering species with relatively small leaves, very small uncrowded translucent pinkish flowers with dark pink to reddish stripes and markings, dark purple labellum and callus, narrow dorsal sepal weakly hooding the column, narrow widely spreading petals and a relatively broad labellum with strongly recurved margins.

Similar species: *Acianthus scopulus* has obvious affinities with *Acianthus fornicatus* but that species can be distinguished by its much larger darker flowers, broader, strongly cucullate dorsal sepal, larger lateral sepals and petals and a larger broadly ovate labellum (when flattened) which is deeply saccate with numerous relatively large papillae. The new species might be confused at first glance with *Acianthus pusillus* which is immediately distinguished by its narrower semi-erect dorsal sepal held well away from the column and the petals reflexed back against the ovary.

Notes: This is by far the smallest member of the six species in the *Acianthus fornicatus* complex. It forms small crowded colonies with a low proportion of flowering plants.

Conservation status: *Acianthus scopulus* is currently known from fewer than 150 plants growing in small colonies. It appears to be rare with a very limited distribution and is also restricted to a specialised coastal habitat. Further searching is needed to establish its distribution, abundance and conservation status but until further colonies are found I suggest a ROTAP code of 1V to be appropriate.

Etymology: The Latin *scopulus*, crag, cliff edge, projecting rock, referring to its habitat on coastal headlands.

Acknowledgements

I thank the directors and curators of CANB, MEL and NSW for allowing access to their collections to study specimens of *Acianthus*. Also Marion Garratt and Karina Richards for technical assistance, Lachlan Copeland for his photographs and Barbara Jones for reading the manuscript.

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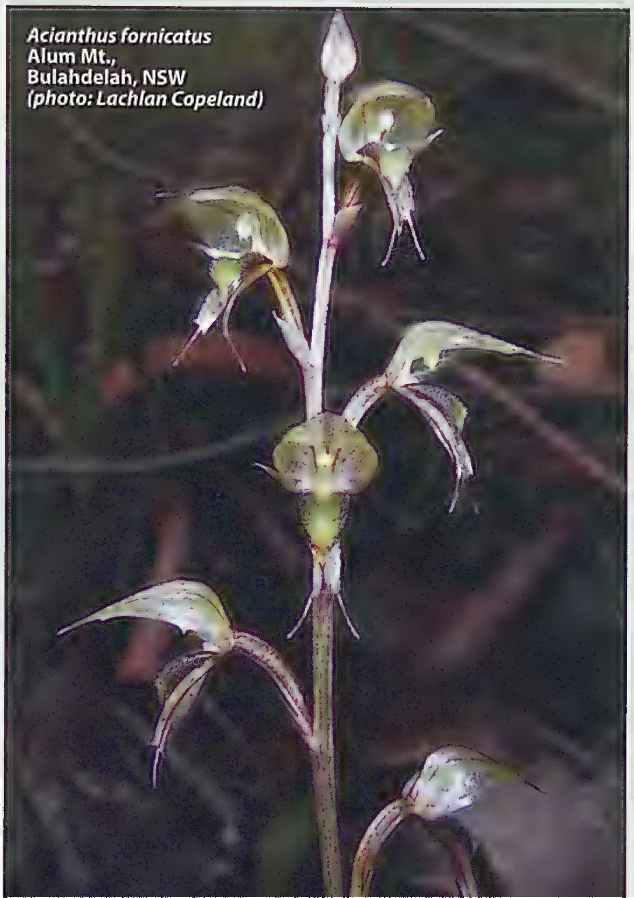
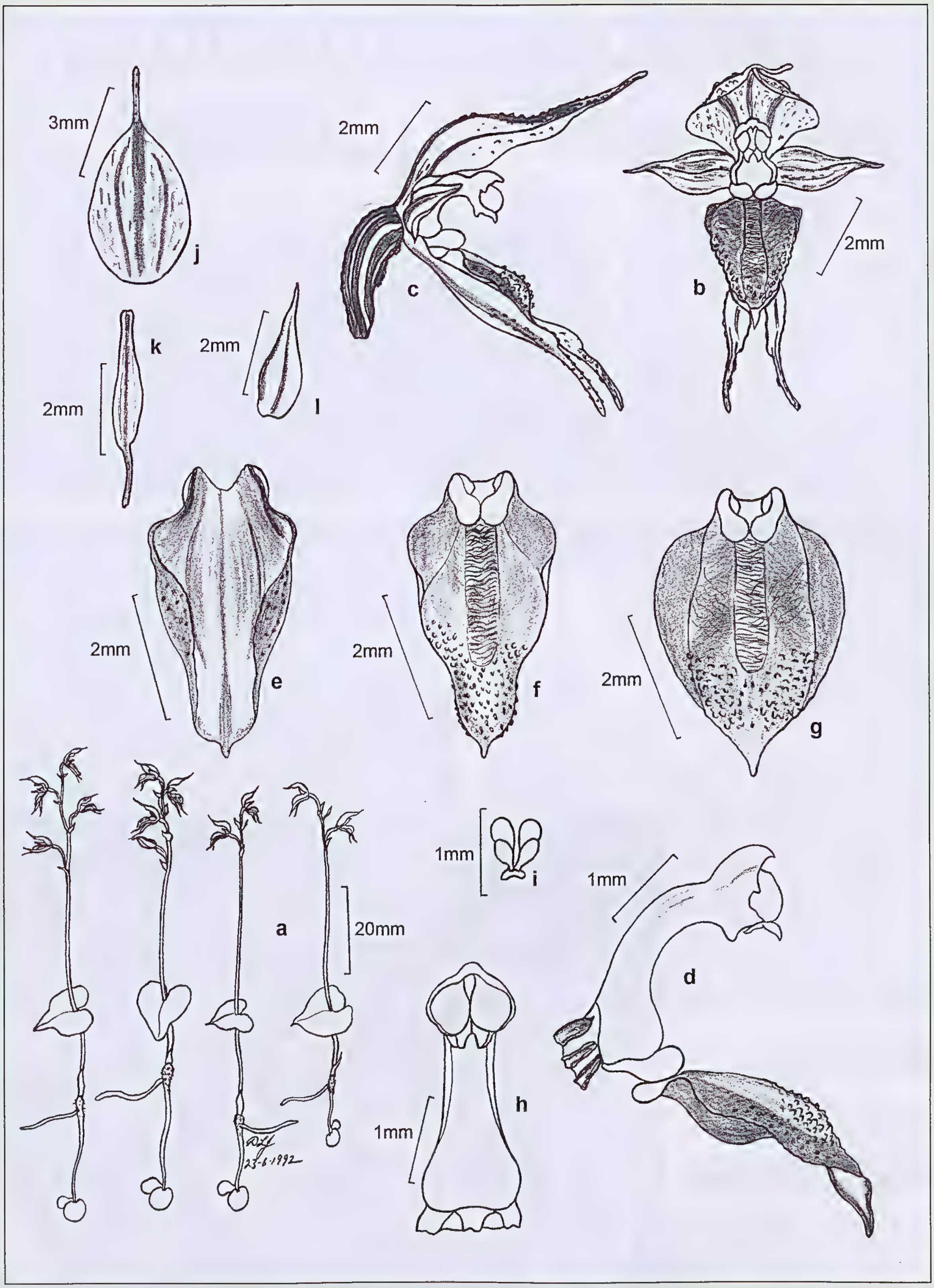


Acianthus fornicatus
Alum Mt.,
Bulahdelah, NSW
(photo: Lachlan Copeland)



Acianthus scopulus **Tathra, NSW**
a. flowering plants; b. flower from front; c. flower from side; d. column and labellum from side; e. labellum from below; f. labellum from above; g. labellum from above flattened; h. column from front; i. hemipollinarium; j. dorsal sepal flattened; k. lateral sepal; l. petal.
© **D.L.Jones**, drawn 23 June 1992 (part of TYPE).

Dendrobium speciosum 'Yves Jacqueline'

by David P. Banks

This is one of the finest examples in cultivation of an "inter-varietal" *Dendrobium speciosum*. This is a man-made combination between different and geographically separated botanical populations of *Dendrobium speciosum* that may be referred to as varieties, subspecies or indeed species depending on what classification system you follow.

The cultivar 'Yves Jacqueline' originated from a cross made by Neil Finch in the early 1990s. Neil was the founder of Down Under Native Orchids (DUNO). The breeding is *Dendrobium speciosum* subsp. *pedunculatum* 'Herberton' x *Dendrobium speciosum* subsp. *speciosum* 'National White'.

This apparently was the last seedling sold at the nursery, before Neil relinquished ownership of the DUNO nursery and name. It was "sold" for $20 to long term customers that had become friends of Neil's, Yves (originally from Mauritius) and his French wife Jacqueline. It was an advanced seedling and the cheque that paid for it was never cashed.

Fast forward about a decade and Yves contacted Neil when this plant was in full bloom. Neil flipped when he saw it as he considered it the best seedling raised *speciosum* that he had seen. Neil told him to grow it on, but would like a small piece one day.

Sadly, a couple of years later, Yves succumbed to pancreatic cancer. At the wake after his funeral Jacqueline unexpectedly presented Neil with the plant as was his dying wish. Over the past dozen or so years, Neil has grown this plant, with a division grown by his father Neville at Lake Cathie until his passing a couple of years ago.

In recent times this very robust and vigorous plant has been divided many times by Neil, to the point that 11 or 12 divisions have been gifted to friends and selected native orchid enthusiasts and growers. So it shouldn't be too long before 'Yves Jacqueline' is seen on the showbench.

Neil Finch had the unique ability to identify superior quality plants and instinctively knew what combinations of parents were likely to produce superior results. In a very short space of time, whilst running DUNO, he bred *Dendrobium kingianum* two shades darker than anything previously seen. Neil did much pioneering work on intervarietal *Dendrobium speciosum*, and was one of the first to target the use of *Dendrobium speciosum* subsp. *curvicaule* 'Daylight Moon'. (There may be seedlings of ('Yves Jacqueline' x 'Daylight Moon') appearing fairly soon... As the original DUNO, Neil developed worthy Tropicool *Dendrobium* hybrids (hot/colds many called them). Ironically, I came up with that name and used it in *Orchids Australia* over three decades ago, years before that name was trademarked. Many of these older hybrids are still the benchmark of today. Neil popularised the "Watagan" form of what was previously *Dendrobium striolatum*, now correctly *Dockrillia banksii*. He also line-bred exceptional *Sarcochilus ceciliae* and made many novelty hybrids within *Sarcochilus* and related genera.

With Neil Finch subsequently withdrawing from the orchid scene, the breeding of native orchids really flatlined for 10 or more years. Everyone went Avril's Gold crazy, and most breeding centred around anything and everything being crossed with *speciosum*. Sure the nursery and most of the stock transferred into new hands, but it was a bit like taking an irreplaceable lead singer away from a fine band. Think along the lines of Freddie Mercury and Queen. ■

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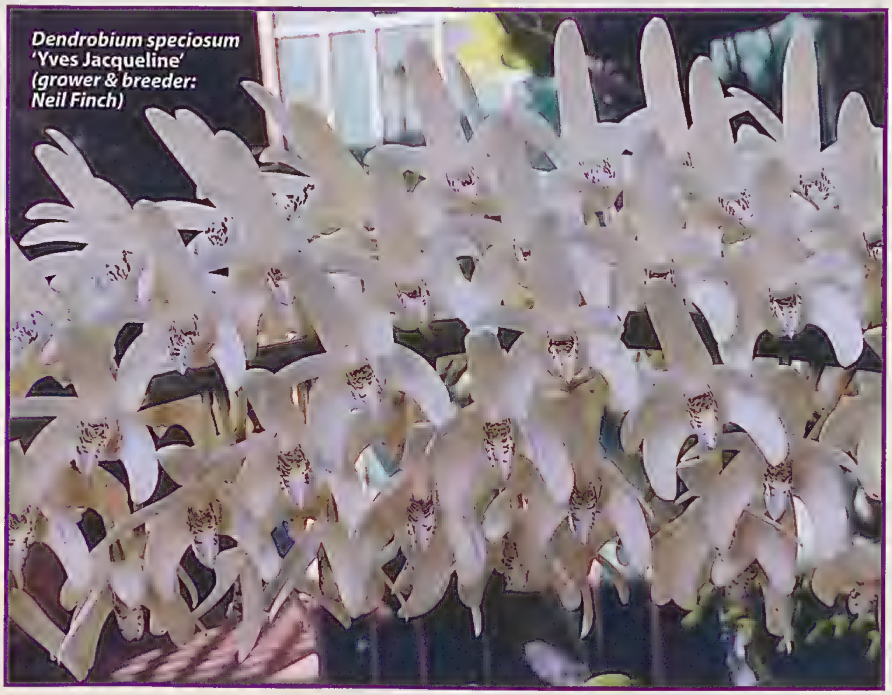
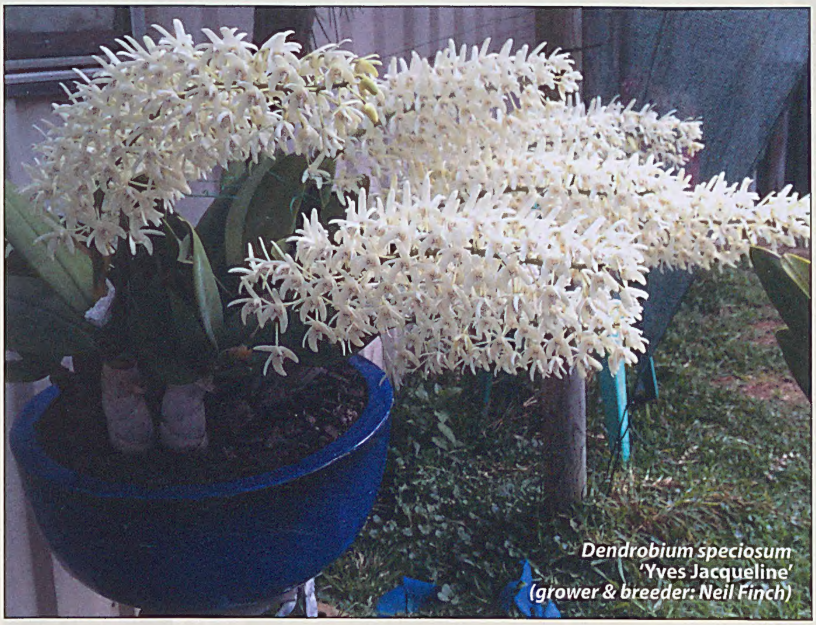


Dendrobium speciosum 'Yves Jacqueline' (grower & breeder: Neil Finch)



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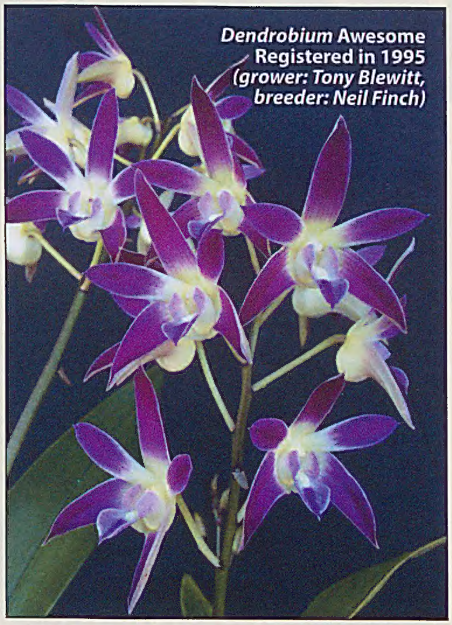
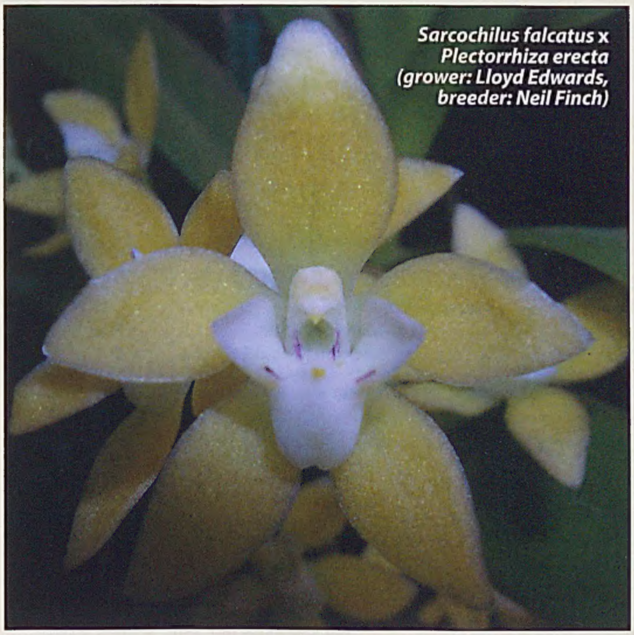
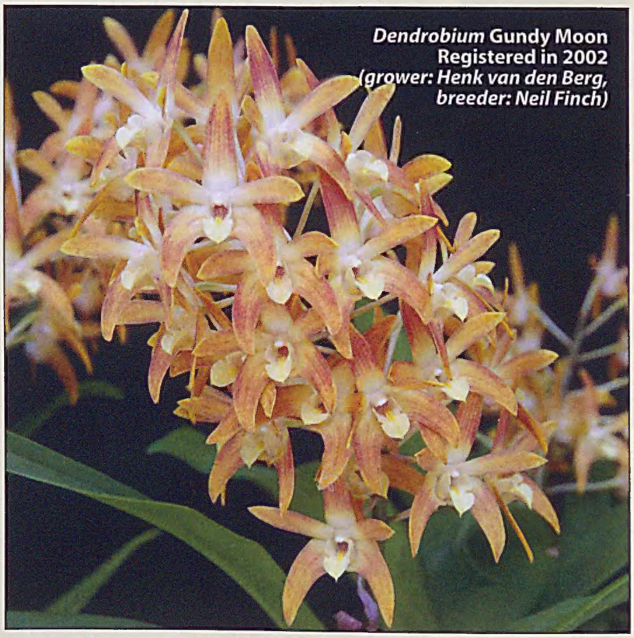


Dendrobium Awesome Registered in 1995 (grower: Tony Blewitt, breeder: Neil Finch)



Sarcochilus falcatus x *Plectorrhiza erecta* (grower: Lloyd Edwards, breeder: Neil Finch)



Dendrobium Gundy Moon Registered in 2002 (grower: Henk van den Berg, breeder: Neil Finch)

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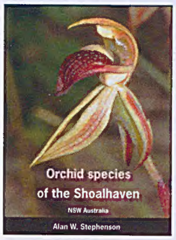

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by Alan W. Stephenson

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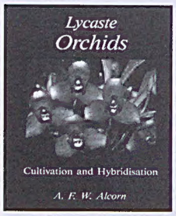

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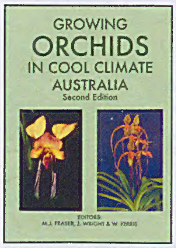
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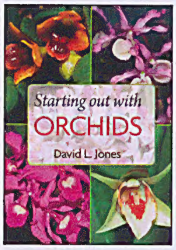

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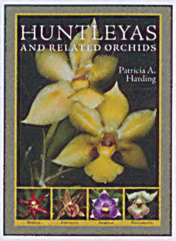

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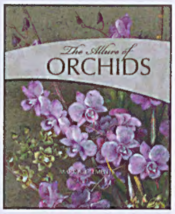

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by Mark A. Clements

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by Andrew Brown, Pat Dundas, Kingsley Dixon & Stephen Hopper

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